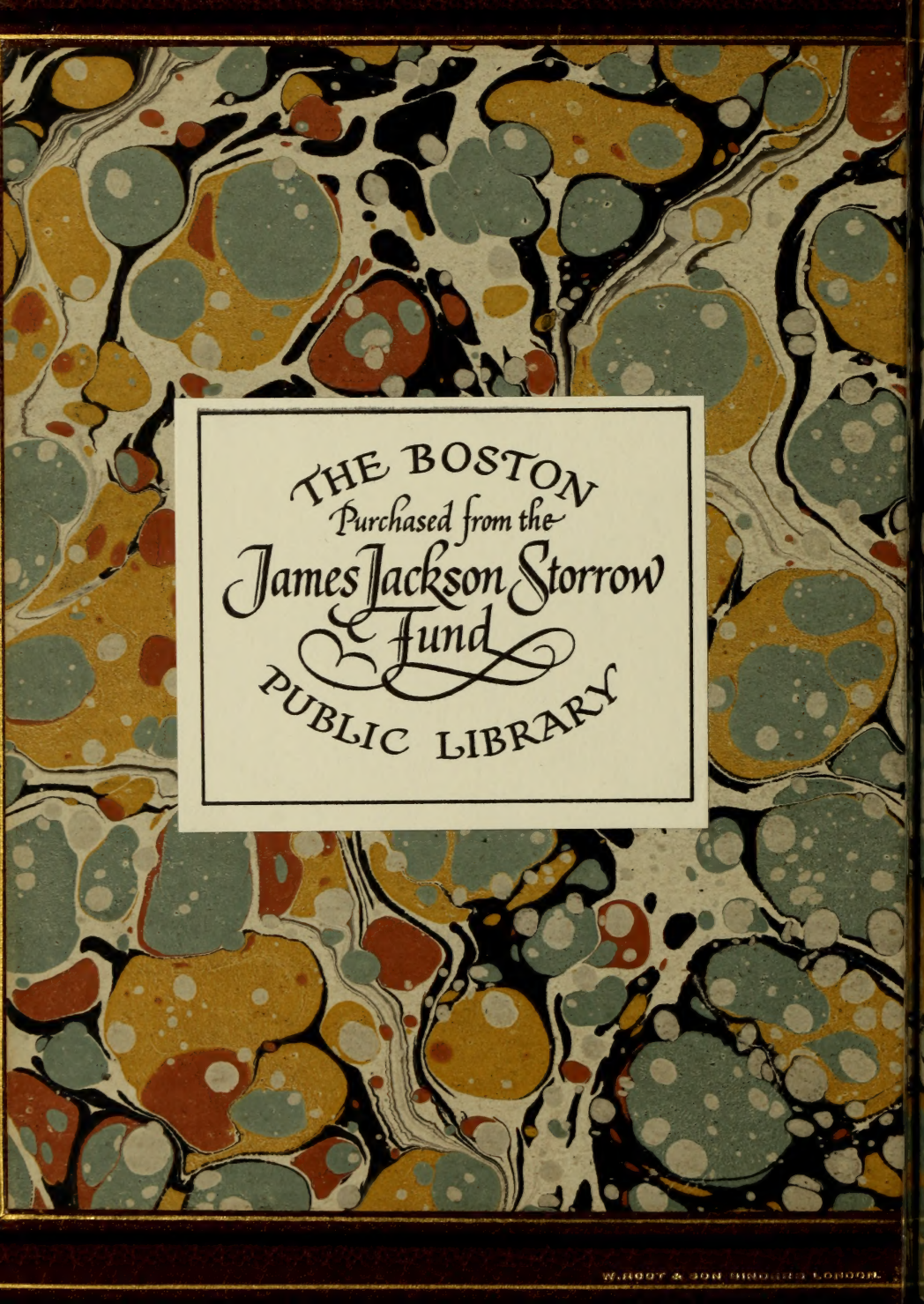
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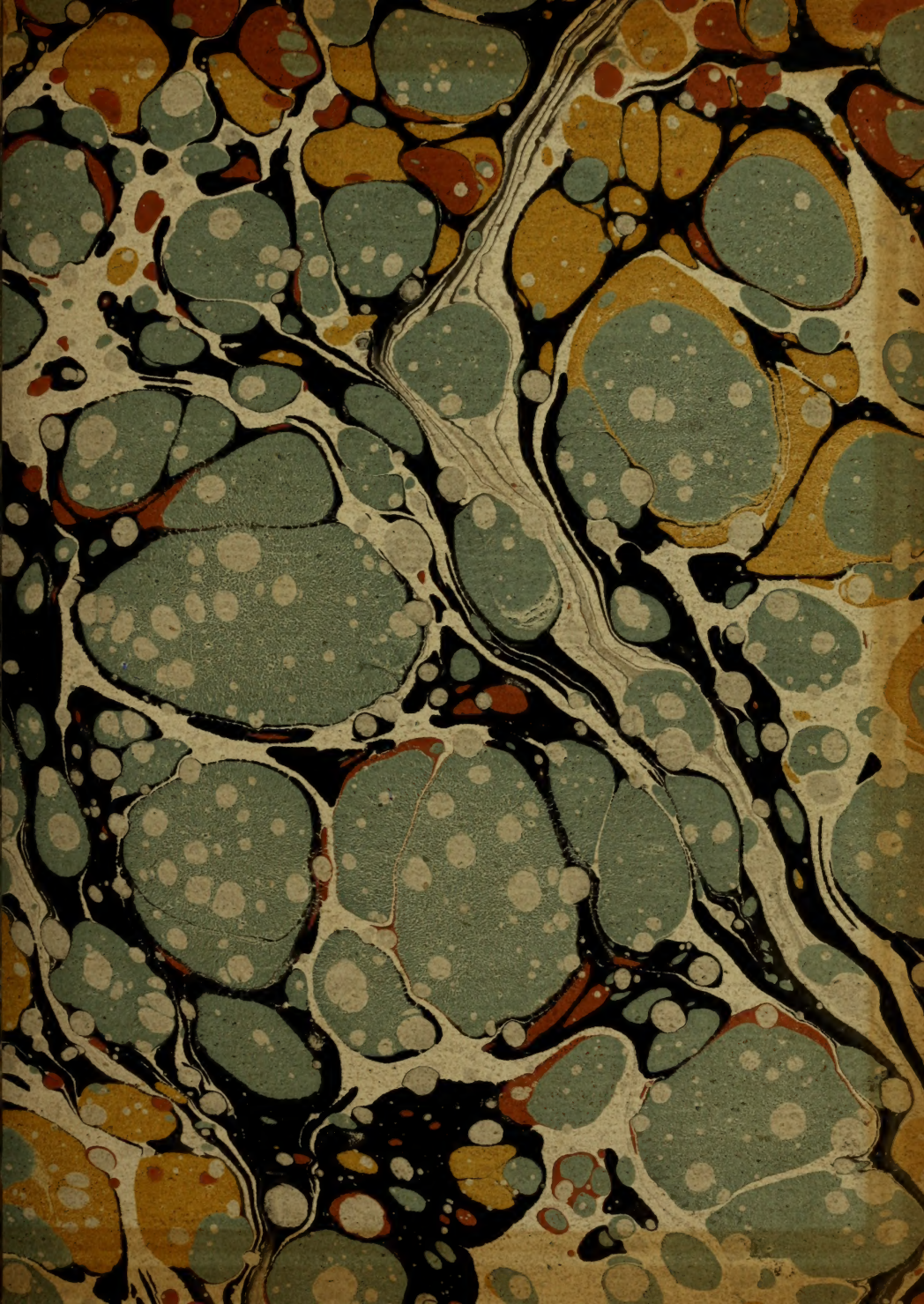

¶ *Most*

BRIEFE TABLES TO KNOVVE REDILY HOVVE *manye ranckes of footemen armed* WITH CORSLETTES, AS VNARMED, GO TO THE MAKING OF A IUST BATTAYLE, FROM AN HUNDRED VNTO TWENTYE THOUSANDE.

NEXT A VERY EASYE, AND APPROVED VVAY TO ARME A BATTAILE VVITH HARKABUZERS, AND WINGES OF HORSEMEN ACCORDING TO THE VSE AT THESE DAIES

NEVVLYE INCREASED, AND LARGELYE *amplified both in the tables, as in the declarations of the same, by the Auctour himselfe.*

GIROLAMO CATANEO NOVARESE.

Tourned out of Italion into English by. H. G.

¶ *Imprinted at London, by* VV. VVilliamson: for Iohn VVight.

Anno. M. D. LXXIIII.

¶ To the righte honorable, his singuler good Lord the Erle Aloigi Auogardo.

IT IS THE COMMON opinion of all worthye men, that among thinges that preserue a man still in life, vvarfare is that one, before the vvhich none other is to haue place. And that because whosoeuer behaueth him self honorably in the exercise therof, representeth nothing more, then the true Image of the moste great and omnipotent God: Because, among the most high titles attributed (according to his will) to his deuine Maiestie in the olde and holy lawe, he hath alvvayes bene content to bee reuerenced and called by the name of the God of hostes. VVhervpon it is come to passe, that for a good and deuine example for vs, there hath hetherto beene alwaies graunted and offered by the vvhole world vnto this most noble vvarfare, profession, great revvards, high honours, and innumerable praises: VVherof, such store of testimonies, are to be seene in your moste honorable and auncient house, as it is superfluous (mee thinketh) to tell, howe Emperours, and great kinges haue revvarded the vvorthinesse and loyaltie therof vvith no meane degree and Signorye. The vvhich vvorthinesse and loyalty, shyning as it were through a certaine proprietie of long space in your Father, and graundefathers: as the same hath at other times been by proofe well knowen, and honorably rewarded, by that most prudent Senate of *Venice*, so are they novve by worthy succession and common consent

in ſuche ſorte dailye approued, and praiſed in you, as among the faithfull and deare friendes thereof you are reputed and kept, for a great capitaine, a louing child, brother, and champion. VVhich is the cauſe that I (ſtudying to profite with theſe my trauailes, ſuch as they are, eache one that is delighted with this moſt noble kinde of exerciſe) coulde not deuiſe a perſon in this citie, to whome (for his rare vertue, and my bounden dutie) I might better dedicate and conſecrate them, then to your Lordship. And thus I shall arme them, with a iuſt defence againſt thoſe that are of a malicious minde, and like a good ſeruaunt of yours, that in reuerenſing and folowing you, giueth place to none, do praye you the rather to take this patronship vppon you, as in deedes of humanitie and nobleneſſe of minde, I know neuer a Lord at this day, that may take your priſe from you. To whoſe good fauoure I doo moſte reuerently recommende me: From Breſcia the. 5. daye of Iulye. 1563.

¶ *Your Lordshippes moſt humble ſeruant, Girolamo, Catanео Nouareſe.*

¶ *Girolamo Cataneo,*

to the gentle Reader.

STO KNOVVE, HOVVE *to determine vppon a ſodayne, fitteth vvell to euerye one that hath anye doinges, and that in the handeling therof, hath therby gotten great honnour and commoditie: So is it (according to the iudgement of the vviſe) of greateſt importance to an hoſt, that is in the feeld out of array. Becauſe it often happeneth, that hauing neede ſometimes to fight vpon ſmall vvarning, it is vvith a leſſe nomber of people aſſaulted, put out of order and ouerthrovven. VVherfore I haue taken vpon mee, being deſirous to helpe at ſo great a neede, to shevv briefly the vvaye hovve it maye quicklye bee brought into a maine battaile, and hovv readely to arme the ſaide battaile aſvvell vvith Corſlettes, as harkabuzers, and horſemen. To the ende that euery meane vvit, may vnderſtande all that, vvhich I, by the ſpace of thirtie yeeres and more, haue obſerued from vviſe Capitaines, proued by experience in perſon, and learned aſvvell by the vvarres, as by the Mathimaticall diſciplines: VVherby eche one may knovve hovv at neede, valiantly to reſiſt the vnſet of the enemie, and that for the moſt times, not ſo much by force, as by pollicie.*

¶ *A declaracion of the ſquares* of a Battayle.

Becauſe it were to long a worke, for thoſe that are ignorannte howe to make the reconing to ſett a battaile, of men armed with Corſlettes, as vnarmed, according to the cuſtom obſerued at theſe daies, I haue founde out certayne briefe and eaſie Tables following: Whereby maye euidently be ſeene (the whole number of the armed and vnarmed, being once knowen) howe long and broade it ought to be, beginning from an hundred vnto twentye thouſand For it is almoſt an impoſſible thing, thoughe a battaile were verye greate, that it ſhoulde mount vnto this number, for that at theſe dayes the manner is not, to ſet a battaile of more than of tenne or twelfte thouſande men. And ye ſhall vnderſtand further, how it is needefull that a battaile well appointed, bothe for the fight and marche, that it be ſquare of grounde and not of people: Or elſe twoo folde in reſpect of the ranckes, that are taken from the head and taile of the battaile, to arme the twoo flanckes, as by our example ſhalbe declared. When the grounde that this battaile doeth occuppye is ſquare, it commeth to paſſe that there are not ſo manye men in lengthe, as are in bredthe. Of a ſquare battaile, or number of people, and not of grounde, as is ſeene in the fifte, ſixte, and ſeuenth Columne of our tables: and of this battaile, it is neceſſary to ſpeake a few wordes: To wit this battaile is ſquare of number of people, and not of grounde, that is, there are ſo many men in length, as in breadth. But thoroughe the diſtaunce which is needefull to be had, betweene fotemen and fotemen, from breſt to back, ſet for the marche and for the fight, it commeth to be more long then broode of ground. Or

elſe

elſe it is ſquare of number of people, and conſiquente of grounde. As when there are ſo many men in length, as are in breadth. True it is, that this kinde of order is not meete to fight, becauſe ſuch a ſquare cannot be found, but that for the moſt times, all the pikes bee at ſtand, and upright. Letting you to wit, that it might for all that come to paſſe, that the Pikes ſhoulde fall from theyr ſtande, and the battaile remaine in lyke ſo.te ſquare of ground, as of people. At what time it ſhould happen for a very ſtrange thyng, that the battaile, whileſt it were with the Pikes at ſtande, ſhould bee aſſalted on al foure partes, and being willing to bende theyr Pikes for their defence, in that caſe, ſome fewe of them abiding faſt in the Center of the battaile, and all the others rounde about being enlarged proporcionally, the battaile ſhould yet remayn ſquare of people & of ground excepte the angles, which ſhould come to be opened. And this is ỹ reaſon that ỹ pikes, which are at ſtand, are not meete to fight, becauſe in ſo being, each ſote man hath not .7. ſote ſpace in lengthe, that is, three before, and three behinde, & one for his perſon, the which ſpace is needefull to be appointed out, to eache ſoteman in the aforeſayde battailes. Beſides that, it is alſo to be knowne, how according to ỹ good deuiſion, that our auncients do make, which is both praiſed & obſerued, by the wiſe captains of this our time, it is needeful for the hauing of the aboueſayd ſquares of a battaile, that euery ſoteman haue in breadth, frō ſhoulder to ſhoulder, three ſote in this ſort, to wit, that there be two ſote betwene one ſoteman & an other, ſo that euery one doth occupy one ſote for his perſon, & one other ỹ he is to haue on eache ſide him, which is 3. in breadth for each one of thē. And although a bataile in fight doth ware more narrow, aſwel in length as in breadth, the one ſetting his ſote in the midde paſe of the other, It yet remaineth not for all this, but that the aboueſayde battaile is alſo ſquare of grounde.

Marbrato.

Diſaborare.

straagante.

of the tables following.

The firste nombers, placed in the first Columne, do signifie the sowtemen, armed with Corslettes, as vnarmed, or vnarmed Pikes.

The second nombers, in the seconde Columne, do signifie so manye sowtemen in a rancke, as is required that the sowtemen of the first Columne do go in araye.

The thirde nombers in the thirde Columne, do signifye so many ranckes, as the sowtemen of the firste Columne do go in araye.

The fourth nomber in the fourth Columne, do signifie, the sowtemen that do excede, the aray being made.

The fifte nombers in the fifte Columne, do signifie so manye maniples or partes, the raye is to be made into, so that doubling the, shoulder to shoulder, it maye make a square battayle of nomber of people.

The sixte nombers, in the sixt Columne, do signifie so many sowtemen in a rancke, as shalbe set to the shoulder of the maniples, and these rancks are made of those ranckes that did excede in the last of the raye, because they are not one entier maniple, and this is done for to performe an entier battaile of nomber of people.

The seuenth nombers, in the seuenth Columne, do signifie the nomber of people in length, and breadth of a battayle, that is, the first nomber doth signifie the people in length, and the seconde the people in breadth of that battaile.

The eight nombers, in the eight Columne do signifie the sowtemen that do excede, out of a square battayle of nomber of people.

The ninth nombers, in the ninth Columne, do signifie so manye maniples, or partes, as the araye of the sowtemen, of the first Columne is to be made into, so that doubling the one maniple to the other, from shoulder to shoulder, they do make a square battaile of grounde.

The tenth nombers, in the tenth Columne, do signifie

so

so many fotemen in a ranke, as is to be set to the shoulder of the maniples, and these rankes are made of those ranks that do excede in the last of the raye, because those rankes do not make an entier maniple, for to be able to performe a square battaile of grounde: so these rankes that are to be set to ẏ shoulder of the maniples, are made of fewer men in a rancke, to the ende they may make the length equal to that of the maniples, for to be able to performe the same battaile square of grounde. And this battaile commeth to be two times and a thirde more brode then long, as experte warriers, both auncient & moderne will haue it. And this maner of battaile is square of grounde, that is, as long as brode.

The eleuenth nombers in the eleuenth Columne, do signifie, so many men in length and breadth as are in a square battaile of grounde, that is to say, the first nomber is the length, and the seconde the breadth.

The twelfe nõbers, in the twelfth Columne, do signifie the excesse of the fotemen, of a square battaile of grounde.

The thirtenth nombers, in the thirtenth Columne, do signifie so many maniples or parts as the aray ought to be made into, for to make a twofolde battaile.

The fourthtenth nombers, in the fourthtenth Colũne do signifie so many fotemen in a rancke, as is to be set to the shoulder of the maniples, and these rankes are made of those rancks, that do excede in the last of the raye, because they do not make one entier maniple, to ẏ length of the others. And these rankes that are made, of fewer men in a rancke, to the ende they maye be equal in length to the maniples, to be able to ioyne shoulder with those maniples, to performe a twofolde battaile, that is, that the breadth be of two times so manye men as the length.

The fiftenthe nombers in the fiftenthe Columne, do signifie the lengthe and breadth of a square twofolde battaile.

battaile, the firſte, number are the length, and the ſecond the breadth.

The firteenth number in the firteenth Columne, do ſignifie ſo many fotemen as do entæde in a ſquare two folde battaile

We haue already ſpoken of a ſquare battaile, of nōber of people, of ground, & two folde, next, it ſhalbe briefelye declared, although in the beginning of this treatiſe, there is inough ſayd. A ſquare battaile of number of people, is when there are ſo many men in length, as in breadth, & this battaile, the author vnderſtandeth, not to be ſquare of ground, according to the diſtance that men will haue in length and breadth, in theyr march and fight, abiding ſtill in battaile, becauſe being ſquare in nūber of people, and theſe fotemen hauing theyr due diſtance, and ſeuen fote in length, and three in breadth, as is aboue ſayd, the battaile would bē two times, and a thyrde, more long then broade of grounde. So as this number of battaile cannot be called a ſquare battaile of ground. Becauſe a battaile ſquare of grounde, is two times & a third more broade then long of men: & this maner of battail, hauing the due diſtāce as is aboue ſayd, may be very wel called a ſquare battaile of grounde, becauſe this battaile doth take aſmuch groūd in length as in breadth. And a ſquare two fold battaile, is two times more broade, then long, for taking away of the armed rankes frō the head & taile therof, to arme the two flankes of ẏ battaile, it wilbe ſtil the ſelfe ſame in length & breadth of mē, as is the ſquare battaile of ground, & for this cauſe it maye alſo be called a ſquare battaile of groūd. And for ẏ this ſort of battaile is more in vſe then ẏ others, by reaſon of the vnarmed pikes, I haue therof ſet for thē many exāples, as in this worke is to be ſeene. And if it ſeme good vnto you, to make your battailes of any other proporcion, you ſhall find the whole in the end of this worke: With other good aduertizementes how to incampe.

I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
100	3	33	1	3	1	10	0	5	1	6	4	4	2	7	2
	5	20	0	2	0			3	1			2	4		
	7	14	2	1	3	10		2	2	16		2	0	14	
	9	11	1	1	1			1	7			1	5		
150	3	50	0	4	0	12	6	6	0	8	6	6	0	8	6
	5	30	0	2	2			3	3			3	3		
	7	21	3	1	5	12		2	4	18		2	4	18	
	9	16	6	1	3			2	0			2	0		
200	3	66	2	4	2	14	4	7	1	9	2	6	2	10	0
	5	40	0	2	4			4	2			4	0		
	7	28	4	2	0	14		3	1	22		2	6	20	
	9	22	2	1	5			2	4			2	2		
250	3	83	1	5	1	15	10	8	1	10	0	7	1	11	8
	5	50	0	3	1			5	0			4	2		
	7	35	5	2	2	16		3	4	25		3	1	22	
	9	27	7	1	7			2	7			2	4		
300	3	100	0	5	2	17	11	9	0	11	3	8	1	12	0
	5	60	0	3	2			5	2			5	0		
	7	42	6	2	3	17		3	6	27		3	4	25	
	9	33	3	1	8			3	0			2	7		
350	3	116	2	6	1	18	8	9	2	12	2	8	2	13	12
	5	70	0	3	4			5	4			5	1		
	7	50	0	2	5	19		4	1	29		3	5	26	
	9	38	8	2	1			3	2			2	8		
400	3	133	1	6	2	20	0	10	0	13	10	9	1	14	8
	5	80	0	4	0			6	0			5	3		
	7	57	1	2	6	20		4	2	30		4	0	28	
	9	44	4	2	2			3	3			3	1		
450	3	150	0	7	0	21	9	10	2	14	2	10	0	15	0
	5	90	0	4	1			6	2			6	0		
	7	64	2	3	9	21		4	4	32		4	2	30	
	9	50	0	2	3			3	5			3	3		

I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
500	3	166	2	7	1	22	16	11	2	14	10	10	1	16	4
	5	100	0	4	2			7	0			6	1		
	7	71	3	3	1	22		5	0			4	3	31	
	9	55	5	2	4			3	8	35		3	4		
550	3	183	1	7	2	23	21	12	0	15	10	11	1	16	6
	5	110	0	4	3			7	1			6	4		
	7	78	4	3	2	23		5	1			4	6	34	
	9	61	1	2	5			4	0	36		3	7		
600	3	200	0	8	1	24	0	12	1	16	8	11	2	17	5
	5	120	0	5	0			7	2			7	0		
	7	85	5	3	4	25		5	2			5	0		
	9	66	6	2	7			4	1	37		3	8	35	
650	3	216	2	8	2	25	0	12	2	17	4	12	0	18	2
	5	130	0	5	1			7	3			7	1		
	7	92	6	3	5	26		5	3			5	1		
	9	72	2	2	8			4	2	38		4	0	36	
700	3	233	1	8	2	26	24	13	2	17	3	12	2	18	16
	5	140	0	5	1			8	1			7	3		
	7	100	0	3	5	26		5	6			5	3		
	9	77	7	2	8			4	5	41		4	2	38	
750	3	250	0	9	0	27	21	13	2	18	12	13	0	19	9
	5	150	0	5	2			8	1			7	4		
	7	107	1	3	6	27		5	6			5	4		
	9	83	3	3	0			4	5	41		4	3	39	
800	3	266	2	9	1	28	16	14	2	18	8	13	1	20	0
	5	160	0	5	3			8	4			8	0		
	7	114	2	4	0	28		6	2			5	5	40	
	9	88	8	3	1			4	8	44		4	4		
850	3	283	1	9	2	29	9	14	2	19	14	14	0	20	10
	5	170	0	5	4			8	4			8	2		
	7	121	3	4	1			6	2			6	0		
	9	94	4	3	2	29		4	6	44		4	6	42	

I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
900	3	300	0	10	0	30	0	15	0	20	0	14	0	21	81
	5	180	0	6	0			9	0			8	2		
	7	128	4	4	2	30		6	3			6	0		
	9	100	0	3	3			5	0	45		4	6	42	
950	3	316	2	10	1	30	20	15	2	20	10	14	1	22	4
	5	190	0	6	1			9	2			8	3		
	7	135	5	4	3	31		6	5			6	1		
	9	105	5	3	4			5	2	47		4	7	43	
1000	3	333	1	10	2	31	8	16	2	20	0	15	0	22	10
	5	200	0	6	2			10	0			9	0		
	7	142	6	4	4	32		7	1			6	3		
	9	111	1	3	5			5	5	50		5	0	45	
1100	3	366	2	11	0	33	11	16	2	22	0	15	2	23	19
	5	220	0	6	3			10	0			9	2		
	7	157	1	4	5	33		7	1			6	5		
	9	122	2	3	6			5	5	50		5	2	47	
1200	5	240	0	7	0	34	10	10	2	23	4	9	3	25	0
	7	171	3	5	0			17	3			6	6		
	9	133	3	3	8	35		5	7			5	3		
	11	108	4	3	2			4	8	52		4	4	48	
1300	5	260	0	3	1	36	4	11	1	23	12	10	0	26	0
	7	185	5	5	1			8	0			7	1		
	9	144	4	4	0	36		6	2			5	5		
	11	118	2	3	3			5	1	56		4	6	50	
1400	5	280	0	7	2	37	31	11	3	24	8	10	3	26	22
	7	200	0	5	2			8	2			7	4		
	9	155	5	4	1			6	4			5	8		
	11	127	3	3	4	37		5	3	58		4	9	53	
1500	5	300	0	7	4	38	18	12	0	25	0	11	0	27	15
	7	211	3	5	4			8	4			7	6		
	9	166	6	4	3			6	6			6	1		
	11	136	4	3	6	39		5	5	60		5	0	55	

I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
1600	5	320	0	8	0	40	0	12	1	26	14	11	2	28	4
	7	228	4	7	5			8	5			8	1		
	9	177	7	4	4	40		6	7	61		6	3	57	
	11	145	5	3	7			5	6			5	2		
1700	5	340	0	8	1	41	19	12	2	27	26	11	3	29	18
	7	242	6	5	6			8	6			8	2		
	9	188	8	4	5	41		6	8	62		6	4	58	
	11	154	6	3	8			5	7			5	3		
1800	5	360	0	8	2	42	36	12	4	28	8	12	0	30	0
	7	257	1	6	0			9	1			8	4		
	9	200	0	4	6	42		7	1	64		6	6	60	
	11	163	7	3	9			5	9			5	5		
1900	5	380	0	8	4	43	8	13	2	28	24	12	1	31	9
	7	271	3	6	2			9	4			8	5		
	9	211	1	4	8	44		7	4	67		6	3	61	
	11	172	8	4	0			6	1			5	6		
2000	5	400	0	9	0	44	20	13	3	29	28	12	4	31	16
	7	285	5	6	3			9	5			9	1		
	9	232	2	5	0	45		7	5	6 8		7	1	64	
	11	181	9	4	1			6	2			5	9		
2100	5	420	0	9	1	45	30	14	0	30	0	13	0	32	20
	7	300	0	6	4			10	0			9	2		
	9	233	3	5	1	46		7	7	70		7	2	65	
	11	190	10	4	2			6	4			5	10		
2200	5	440	0	9	2	46	38	14	3	30	10	13	1	33	22
	7	314	2	6	5			10	3			9	3		
	9	244	4	5	2	47		8	1	73		7	3	66	
	11	200	0	4	3			6	7			6	0		
2300	5	460	0	9	3	47	44	14	4	31	6	13	2	34	22
	7	328	4	6	6			10	4			9	4		
	9	255	5	5	3	48		8	2	74		7	4	67	
	11	209	1	4	4			6	8			6	1		

I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
2400	5	480	0	10	0	48	0	15	0	32	0	14	0	34	20
	7	342	6	7	1			10	5			10	0		
	9	266	6	5	5	50		8	3	75		7	7	70	
	11	218	2	4	6			6	9			6	4		
2500	5	500	0	10	0	50	0	15	3	32	4	14	1	35	15
	7	357	1	7	1			11	1			10	1		
	9	277	7	5	5	50		8	6	78		7	8	71	
	11	227	3	4	6			7	1			6	5		
2600	5	520	0	10	2	50	0	15	3	33	26	14	2	36	8
	7	371	3	7	3			11	1			10	2		
	9	288	8	5	7	52		8	6	78		8	0	72	
	11	236	4	4	8			7	1			6	6		
2700	5	504	0	10	2	51	48	15	4	34	14	15	0	36	0
	7	385	5	7	3			11	2			10	5		
	9	300	0	5	7	52		8	7	79		8	3	75	
	11	245	5	4	8			7	2			6	9		
2800	5	560	0	10	3	52	44	16	0	35	0	15	6	37	25
	7	400	0	7	4			11	3			10	3		
	9	311	1	5	8	53		8	8	80		8	7	75	
	11	254	6	4	9			7	3			6	9		
2900	5	380	0	10	4	53	38	16	2	35	30	15	1	38	12
	7	414	2	7	5			11	5			10	0		
	9	322	2	6	0	54		9	1	82		8	4	76	
	11	263	7	4	10			7	5			6	0		
3000	5	600	0	11	0	54	36	16	3	36	12	15	7	38	36
	7	428	4	7	6			11	6			11	1		
	9	333	3	6	1	55		9	2	83		8	9	78	
	11	272	8	5	0			7	6			7	1		
3100	5	620	0	11	1	55	20	17	1	36	4	15	4	39	19
	7	442	6	8	0			12	2			11	2		
	9	344	4	6	2	56		9	5	86		8	7	79	
	11	281	9	5	1			7	9			2	2		

I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
3200	5	640	0	11	2	56	8	17	1	37	18	16	0	40	0
	7	457	1	8	1			12	2			11	3		
	9	355	5	6	3	57		9	5	86		8	8	80	
	11	290	10	5	2			7	9			7	3		
3300	5	660	0	11	2	57	51	17	4	37	7	16	2	40	20
	7	471	3	8	1			12	5			11	5		
	9	366	6	6	3	57		9	8	89		9	1	82	
	11	300	0	5	2			8	1			7	5		
3400	5	680	0	1	3	58	36	17	4	38	18	16	2	41	38
	7	485	5	8	2			12	5			11	5		
	9	377	7	6	4	85		9	8	89		9	1	82	
	11	309	1	5	3			8	1			7	5		
3500	5	700	0	11	4	59	19	18	2	38	4	16	3	42	14
	7	500	0	8	3			13	1			11	6		
	9	388	8	6	5	59		10	2	92		9	2	83	
	11	318	2	5	4			8	4			7	6		
3600	5	720	0	12	0	60	0	18	2	39	12	17	0	42	30
	7	514	2	8	4			13	1			12	1		
	9	400	0	6	6	60		10	2	92		9	4	85	
	11	327	3	5	5			8	4			7	8		
3700	5	740	0	12	1	60	40	18	2	40	20	17	1	43	2
	7	528	4	8	5			13	1			12	2		
	9	411	1	6	7	61		10	2	92		9	6	86	
	11	336	4	5	6			8	4			7	9		
3800	5	760	0	12	2	61	18	19	0	40	0	17	3	43	16
	7	542	6	8	6			13	4			12	4		
	9	422	2	6	8	62		10	5	95		9	7	88	
	11	345	5	5	7			8	7			8	0		
3900	5	780	0	12	2	62	56	19	0	41	5	17	3	44	28
	7	557	1	8	6			13	4			12	4		
	9	433	3	6	8	62		10	5	95		9	7	88	
	11	354	6	5	7			8	7			8	0		

I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
4000	5	800	0	12	3	63	31	19	2	41	23	18	0	44	40
	7	571	3	9	0			13	6			12	6		
	9	444	4	7	0	63		10	7	97		10	0	90	
	11	363	7	5	8			8	9			8	2		
4100	5	820	0	12	4	64	4	19	2	42	26	18	1	45	5
	7	585	5	9	1			13	6			12	7		
	9	455	5	7	1	64		10	7	97		10	1	91	
	11	372	8	5	9			8	9			8	3		
4200	5	840	0	13	0	64	40	20	0	42	0	18	1	46	14
	7	600	0	9	2			14	2			13	0		
	9	466	6	7	2	65		11	1	100		10	1	91	
	11	381	9	5	10			9	1			8	3		
4300	5	860	0	13	1	65	10	20	0	43	0	18	3	46	22
	7	614	2	9	3			14	2			13	2		
	9	477	7	7	3	66		11	1	100		10	3	93	
	11	390	10	6	0			9	1			8	5		
4400	5	880	0	13	1	66	44	20	2	43	14	18	3	47	29
	7	628	4	9	3			14	4			13	2		
	9	488	8	7	3	66		11	3	102		10	3	93	
	11	400	0	6	0			9	3			8	5		
4500	5	900	0	13	2	67	11	20	2	44	12	19	0	47	35
	7	642	6	9	4			14	4			13	4		
	9	500	0	7	4	67		11	3	102		10	5	95	
	11	409	1	6	1			9	3			8	7		
4600	5	920	0	13	3	67	44	20	4	44	24	19	0	48	40
	7	657	1	9	5			14	6			13	4		
	9	511	1	7	5	68		11	5	104		10	5	95	
	11	418	2	6	2			9	5			8	7		
4700	5	940	0	13	4	68	8	20	4	45	20	19	2	48	44
	7	671	3	9	6			14	6			13	6		
	9	522	2	7	6	69		11	5	104		10	7	97	
	11	427	3	6	3			9	5			8	9		

I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
4800	5	960	0	13	4	69	39	21	1	45	30	19	2	49	47
	7	685	5	9	6			15	1			13	6		
	9	533	3	7	6	69		11	7	106		10	7	97	
	11	436	4	6	3			9	7			8	9		
4900	5	980	0	14	0	70	0	21	1	46	24	19	3	50	0
	7	700	0	10	0			15	1			14	0		
	9	544	4	7	7			11	7	106		10	8	98	
	11	445	5	6	4	70		9	7			8	10		
5000	5	1000	0	14	1	70	30	21	3	46	32	20	0	50	0
	7	714	2	10	1			15	3			14	2		
	9	555	5	7	8			12	0	108		11	1	100	
	11	454	6	6	5	71		9	9			9	1		
5100	5	1020	0	14	1	71	59	22	0	46	40	20	0	51	0
	7	728	4	10	1			15	5			14	2		
	9	566	6	7	8			12	2	110		11	1	100	
	11	463	7	6	5	71		10	0			9	1		
5200	5	1040	0	14	2	72	16	22	0	47	30	20	1	51	49
	7	742	6	10	2			15	5			14	3		
	9	577	7	8	0			12	2	110		11	2	101	
	11	472	8	6	6	72		10	0			9	2		
5300	5	1060	0	14	3	72	44	22	2	47	36	20	3	51	47
	7	757	1	10	3			16	0			14	5		
	9	588	8	8	1			12	4	112		11	4	103	
	11	481	9	6	7	73		10	2			9	4		
5400	5	1080	0	14	3	73	7	22	2	48	24	20	3	52	44
	7	771	3	10	3			16	0			14	5		
	9	600	0	8	1			12	4	112		11	4	103	
	11	490	10	6	7	73		10	2			9	4		
5500	5	1100	0	14	4	74	24	22	4	48	28	21	0	52	40
	7	785	5	10	4			16	2			15	0		
	9	611	1	8	2			12	6	114		12	6	105	
	11	500	0	6	8	74		10	4			9	6		

I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
	5	1120	0	15	0	74		22	4	49		21	0	53	
5600	7	800	0	10	5		50	16	2		14	15	0		35
	9	622	2	8	3	75		12	6	114		11	6		
	11	509	1	6	9			10	4			9	6	105	
	5	1140	0	15	1	75		23	1	49		21	2	53	
5700	7	814	2	10	6		0	16	4		16	15	2		29
	9	633	3	8	4	76		12	8	116		11	8		
	11	518	2	6	10			10	6			9	8	107	
	5	1160	0	15	1	76		23	1	50		21	2	54	
5800	7	828	4	10	6		24	16	4		0	15	2		22
	9	644	4	8	4	76		12	8	116		11	8		
	11	527	3	6	10			10	6			9	8	107	
	5	1180	0	15	2	76		23	3	50		21	4	54	
5900	7	842	6	11	0		48	16	6		0	15	4		14
	9	655	5	8	5	77		13	1	118		12	1		
	11	536	4	7	0			10	8			9	10	109	
	5	1200	0	15	2	77		24	0	50		21	4	55	
6000	7	857	1	11	0		71	17	1		0	15	4		5
	9	666	6	8	5	77		13	3	120		12	1		
	11	545	5	7	0			10	10			9	10	109	
	5	1220	0	15	3	78		25	4	51		22	0	55	
6100	7	871	3	11	1		16	17	0		31	15	5		50
	9	677	7	8	6	78		13	2	119		12	2		
	11	554	6	7	1			10	9			10	0	110	
	5	1240	0	15	4	78		24	1	51		22	2	55	
6200	7	885	5	11	2		38	17	2		29	16	0		40
	9	688	8	8	7	79		13	4	121		12	4		
	11	563	7	7	2			11	0			10	2	112	
	5	1260	0	15	4	79		24	1	52		22	2	56	
6300	7	900	0	11	2		59	17	2		8	16	0		28
	9	700	0	8	7	79		13	4	121		12	4	112	
	11	572	8	7	2			11	0			10	2		

I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
6400	5	1280	0	16	0	80	0	24	3	52	4	22	4	56	16
	7	914	2	11	3			17	4			16	2		
	9	711	1	8	8	80		13	6	123		12	6	114	
	11	581	9	7	3			11	2			10	4		
6500	5	1300	0	16	1	80	20	25	0	52	0	22	4	57	2
	7	928	4	11	4			17	6			16	2		
	9	722	2	9	0	81		13	8	125		12	6	114	
	11	590	10	7	4			11	4			10	4		
6600	5	1320	0	16	1	81	39	24	4	53	28	23	0	57	45
	7	942	6	11	4			17	5			16	3		
	9	733	3	9	0	81		13	7	124		12	7	115	
	11	600	0	7	4			11	3			10	5		
6700	5	1340	0	16	2	81	58	25	1	53	22	23	0	58	30
	7	957	1	11	5			18	0			16	3		
	9	744	4	9	1	82		14	0	126		12	7	115	
	11	609	1	7	5			11	5			10	5		
6800	5	1350	0	16	2	82	76	25	0	54	50	23	2	58	14
	7	971	3	11	5			17	6			16	5		
	9	755	5	9	1	82		13	8	125		13	0	117	
	11	618	2	7	5			11	4			10	7		
6900	5	1380	0	16	3	83	11	25	2	54	42	23	3	58	56
	7	985	5	11	6			18	1			16	6		
	9	766	6	9	2	83		14	1	127		13	1	118	
	11	627	3	7	6			11	6			10	8		
7000	5	1400	0	16	4	83	28	25	2	55	15	23	3	59	38
	7	1000	0	12	0			18	1			16	6		
	9	777	7	9	3	84		14	1	127		13	1	118	
	11	636	4	7	7			11	6			10	8		
7100	5	1420	0	16	4	84	44	25	4	55	5	24	0	59	20
	7	1014	2	12	0			18	3			17	1		
	9	788	8	9	3	84		14	3	129		13	3	120	
	11	645	5	7	7			11	8			10	10		

I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
7200	5	1440	0	17	0	84	60	26	0	55	50	24	0	60	0
	7	1028	4	12	1			18	4			17	1		
	9	800	0	9	4	85		14	4	130		13	3		
	11	654	6	7	8			11	9			10	10	120	
7300	5	1460	0	17	0	85	75	26	0	56	20	24	1	60	40
	7	142	6	12	1			18	4			17	2		
	9	811	1	9	4	85		14	4	130		13	4		
	11	663	7	7	8			11	9			11	0	121	
7400	5	1480	0	17	1	86	4	26	2	56	8	24	4	61	19
	7	1057	1	12	2			18	6			17	2		
	9	822	2	9	5	86		14	6	132		13	4		
	11	672	8	7	9			12	0			11	0	121	
7500	5	1500	0	17	2	86	18	26	3	56	52	24	2	61	58
	7	1071	3	12	3			19	0			17	3		
	9	833	3	9	6	87		14	7	133		13	5		
	11	681	9	7	10			12	2			11	1	122	
7600	5	1520	0	17	2	87	31	26	3	57	19	24	4	61	36
	7	1085	5	12	3			19	0			17	5		
	9	844	4	9	6	87		14	7	133		13	7		
	11	690	10	7	10			12	1			11	3	124	
7700	5	1540	0	17	3	87	44	27	0	57	5	24	4	62	12
	7	1100	0	12	4			19	2			17	5		
	9	855	5	9	7	88		15	0	135		13	7		
	11	700	0	8	0			12	3			11	3	124	
7800	5	1560	0	17	3	88	56	27	2	57	11	25	0	62	50
	7	1114	2	12	4			19	4			17	6		
	9	866	6	9	7	88		15	2	137		13	8		
	11	709	1	8	0			12	5			11	4	125	
7900	5	1580	0	17	4	88	68	27	1	58	12	25	0	63	25
	7	1128	4	12	5			19	3			17	6		
	9	877	7	9	8	89		15	1	136		13	8	125	
	11	718	2	4	1			12	4			11	4		

I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
8000	5	1600	0	17	4	89	79	27	2	58	54	25	1	63	62
	7	1142	6	12	5			19	4			18	0		
	9	888	8	9	8	89		15	2			14	0	126	
	11	727	3	8	1			12	5	137		11	5		
8100	5	1620	0	18	0	90	0	27	2	59	17	25	3	63	36
	7	1157	1	12	6			19	4			18	2		
	9	900	0	10	0	90		15	2			14	2	128	
	11	736	4	8	2			12	5	137		11	7		
8200	5	1640	0	18	1	90	10	27	3	59	58	25	3	64	8
	7	1271	3	13	0			19	5			18	2		
	9	911	1	10	1	91		15	3			14	2	128	
	11	745	5	8	3			12	6	138		11	7		
8300	5	1660	0	18	1	91	19	28	0	59	40	25	4	64	44
	7	1185	5	13	0			20	0			18	3		
	9	922	2	10	1	91		15	5			14	3	129	
	11	754	6	8	3			12	8	140		11	8		
8400	5	1680	0	18	2	91	28	28	0	60	0	25	4	65	15
	7	1200	0	13	1			20	0			18	3		
	9	933	3	10	2	92		15	5			14	3	129	
	11	763	7	8	4			12	8	140		11	8		
8500	5	1700	0	18	2	92	36	28	1	60	40	26	0	65	50
	7	1214	2	13	1			20	1			18	4		
	9	944	4	10	2	92		15	6			14	4	130	
	11	772	8	8	4			12	9	141		11	9		
8600	5	1720	0	18	3	92	44	28	3	60	20	26	2	65	20
	7	1228	4	13	2			20	3			18	6		
	9	955	5	10	3	93		15	8			14	6	132	
	11	781	9	8	5			13	0	143		12	0		
8700	5	1740	0	18	3	93	51	28	2	61	38	26	1	66	54
	7	1242	6	13	2			20	2			18	5		
	9	966	6	10	3	93		15	7			14	5	131	
	11	790	10	8	5			12	10	142		11	10		

I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
8800	5	1760	0	18	4	93	58	28	4	61	16	26	2	66	22
	7	1257	1	13	3			20	4			18	6		
	9	977	7	10	4			16	0			14	6		
	11	800	0	8	6	94		13	1	144		12	0	132	
8900	5	1780	0	18	4	4	64	29	0	61	55	26	4	66	56
	7	1271	3	13	3			20	5			19	1		
	9	988	8	10	4			16	1			14	8		
	11	809	1	8	6	49		13	2	145		12	2	134	
9000	5	1800	0	19	5	49	70	29	0	62	10	26	4	67	22
	7	1285	5	13	4			20	5			19	1		
	9	1000	0	10	5			16	1			14	8		
	11	818	2	8	7	95		13	2	145		12	2	134	
9100	5	1820	0	19	0	95	75	29	1	62	48	27	0	67	55
	7	1300	0	13	4			20	6			19	2		
	9	1011	1	10	5			16	2			15	0		
	11	827	3	8	7	95		13	3	146		12	3	135	
9200	5	1840	0	19	1	95	80	29	1	63	2	27	0	68	20
	7	1314	2	13	5			20	6			19	2		
	9	1022	2	10	6			16	2			15	0		
	11	836	4	8	8	96		13	3	146		12	3	135	
9300	5	1860	0	19	1	96	84	30	0	62	0	27	1	68	52
	7	1328	4	13	5			21	3			19	3		
	9	1033	3	10	6			16	6			15	1		
	11	845	5	8	8	96		13	7	150		12	4	136	
9400	5	1880	0	19	2	96	88	29	4	63	13	27	3	68	16
	7	1342	6	13	6			21	2			19	5		
	9	1044	4	10	7			16	5			15	3		
	11	854	6	8	9	97		13	6	149		12	6	138	
9500	5	1900	0	19	2	97	91	29	3	64	28	27	2	69	47
	7	1357	1	13	6			21	1			19	6		
	9	1055	5	10	7			16	4			15	2		
	11	863	7	9	9	97		13	5	148		12	5	137	

I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
9600	5	1920	0	19	3	97	94	30	0	64	0	27	4	66	9
	7	1371	3	13	7			21	3			19	6		
	9	1066	6	10	0	98		16	6	150		15	4	139	
	11	872	8	8	10			13	7			12	7		
9700	5	1940	2	19	3	98	96	30	0	64	36	28	0	69	40
	7	1385	5	14	0			21	3			20	0		
	9	1077	7	10	8	98		16	6	150		15	5	140	
	11	881	9	8	10			13	7			12	8		
9800	5	1960	0	20	0	98	0	30	3	64	8	28	0	70	0
	7	1400	0	14	2			21	6			20	0		
	9	1088	8	11	1	100		17	0	153		15	5	140	
	11	890	10	9	1			13	10			12	8		
9900	5	1980	0	20	0	99	0	30	2	65	20	28	1	70	30
	7	1414	2	14	2			21	5			20	1		
	9	1100	0	11	1	100		16	8	152		15	6	141	
	11	900	0	9	1			13	9			12	6		
10000	5	2000	0	20	0	100	0	30	3	65	55	28	4	69	64
	7	1428	4	14	2			21	6			20	4		
	9	1111	1	11	1	100		17	0	153		16	0	144	
	11	909	1	9	1			13	10			13	1		
10100	5	2020	0	20	1	100	0	30	3	66	2	28	2	71	18
	7	1442	6	14	3			21	6			20	2		
	9	1122	2	11	2	101		17	0	153		15	7	142	
	11	918	2	9	2			13	10			12	10		
10200	5	240	0	20	2	100	0	30	4	66	36	28	3	71	47
	7	1457	1	14	4			22	0			20	3		
	9	1133	3	11	3	102		17	1	154		15	8	143	
	11	927	3	9	3			14	0			13	0		
10300	5	2060	0	20	1	101	99	31	3	65	30	28	3	72	4
	7	1471	3	14	3			22	4			20	3		
	9	1144	4	11	2	101		17	5	158		15	8	143	
	11	936	4	9	2			14	4			13	0		

I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
10400	5	2080	0	20	2	101	98	31	0	67	15	28	4	72	32
	7	1485	5	14	4			22	1			20	4		
	9	1155	5	11	3	102		17	2	155		16	0	144	
	11	945	5	9	3			14	1			13	1		
10500	5	2100	0	20	2	102	96	31	1	67	48	29	0	72	60
	7	1500	0	14	4			22	2			20	5		
	9	1166	6	11	3	102		17	3	156		16	1	145	
	11	954	6	9	3			14	2			13	2		
10600	5	2120	0	20	3	102	94	31	3	67	14	29	0	73	15
	7	1514	2	14	5			22	4			20	5		
	9	1177	7	11	4	103		17	5	158		16	1	145	
	11	963	7	9	4			14	4			13	2		
10700	5	2140	0	20	3	103	91	32	0	67	0	29	1	73	42
	7	1528	4	14	5			22	6			20	6		
	9	1188	8	11	4	103		17	7	160		16	2	146	
	11	972	8	9	4			14	6			13	3		
10800	5	2160	0	20	4	103	88	32	1	67	13	29	2	73	69
	7	1542	6	14	6			23	0			21	0		
	9	1200	0	11	5	104		17	8	161		16	3	147	
	11	981	9	9	5			14	7			13	4		
10900	5	2180	0	20	4	104	84	32	0	68	20	29	2	74	2
	7	1557	1	14	6			22	6			21	0		
	9	1211	1	11	5	104		17	7	160		16	3	147	
	11	990	10	9	5			14	6			13	4		
11000	5	2200	0	21	0	104	80	32	1	68	52	29	3	74	48
	7	1571	3	15	0			23	0			21	1		
	9	1222	2	11	6	105		17	8	161		16	4	148	
	11	1000	0	9	6			14	7			13	5		
11100	5	2220	0	21	0	105	75	32	0	69	60	29	3	75	0
	7	1585	5	15	0			22	6			21	1		
	9	1233	3	11	6	105		17	7	160		16	4	148	
	11	1009	1	9	6			14	6			13	5		

I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
	5	2240	0	21	1			32	2			29	4		
	7	1600	0	15	1	106		23	1	69		21	2	75	
11200	9	1244	4	11	7		70	18	0		22	16	5		25
	11	1018	2	9	7	107		14	8	162		13	6	149	
	5	2260	0	21	1			32	1			30	3		
	7	1614	2	15	1	106		23	0	70		21	3	75	
11300	9	1255	5	11	7		64	17	8		30	16	6		50
	11	1027	3	9	7	106		14	7	161		13	7	150	
	5	2280	0	21	2			33	0			30	0		
	7	1628	4	15	2	106		23	4	69		21	3	76	
11400	9	1266	6	11	8		58	18	3		15	16	6		0
	11	1036	4	9	8	107		15	0	165		13	7	150	
	5	2300	0	21	2			32	4			30	1		
	7	1642	6	15	2	107		23	3	70		21	4	76	
11500	9	1277	7	11	8		51	18	2		20	16	7		24
	11	1045	5	9	8	107		14	10	164		13	8	151	
	5	2320	0	21	3			33	0			30	2		
	7	1628	4	15	3	107		23	4	70		21	5	76	
11600	9	1288	8	12	0		44	18	3		50	16	8		48
	11	1054	6	9	9	108		15	0	165		13	9	152	
	5	2340	0	21	3			33	2			30	3		
	7	1671	3	15	3	108		23	6	70		21	6	76	
11700	9	1309	0	12	0		36	18	5		10	17	0		72
	11	1063	7	9	9	108		15	2	167		13	10	153	
	5	2360	0	21	4			33	1			30	3		
	7	1685	5	15	4	108		23	5	71		21	6	77	
11800	9	1311	1	12	1		28	18	4		14	17	0		19
	11	1072	8	9	10	109		15	1	166		13	10	153	
	5	2380	0	21	4			33	2			30	4		
	7	1700	0	15	4	109		23	6	71		22	0	77	
11900	9	1322	2	12	1		19	18	5		43	17	1		42
	11	1081	9	9	10	109		15	2	167		14	0	154	

I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
120 00	5	2400	0	22	0	109	10	33	4	71	1	31	0	77	65
	7	1714	2	15	5			24	1			22	1		
	9	1333	3	12	2	110		18	7	169		17	2	155	
	11	1090	10	10	0			15	4			14	1		
12100	5	2420	0	22	0	110	0	33	3	72	4	31	0	78	10
	7	1728	4	15	5			24	0			22	1		
	9	1344	4	12	2	110		18	6	168		17	2	155	
	11	1100	0	10	0			15	3			14	1		
122 00	5	2440	0	22	0	110	100	33	4	72	32	31	1	78	32
	7	1742	6	15	5			24	1			22	2		
	9	1355	5	12	2	110		18	7	169		17	3	156	
	11	1109	1	10	0			15	4			14	2		
12300	5	2460	0	22	1	110	90	34	5	72	60	31	2	78	54
	7	1757	1	15	6			24	2			22	3		
	9	1366	6	12	3	111		18	8	170		17	4	157	
	11	1118	2	10	1			15	6			14	3		
12400	5	2480	0	22	1	111	79	34	2	72	16	31	3	78	76
	7	1771	3	15	6			24	4			22	4		
	9	1377	7	12	3	111		19	1	17		17	5	158	
	11	1127	3	10	1			15	7			14	4		
12500	5	2500	0	22	2	111	68	34	1	73	17	32	0	78	20
	7	1785	5	16	0			24	3			22	6		
	9	1388	8	12	4	112		19	0	171		17	7	160	
	11	1136	4	10	2			15	6			14	6		
12600	5	2520	0	22	2	112	56	34	2	7	44	31	4	79	39
	7	1800	0	16	0			24	4			22	5		
	9	1400	0	12	4	112		19	1	172		17	6	159	
	11	1145	5	10	2			15	7			14	5		
2700	5	2540	0	22	3	112	44	34	3	73	71	3	0	79	60
	7	1814	2	16	1			24	5			22	6		
	9	1411	1	12	5	113		19	2	173		17	7	60	
	11	1154	6	10	3			15	8			14	6		

I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
	5	2560	0	22	3			34	2			32	0		
	7	1828	4	16	1	113		24	4	74		22	6	80	
12800	9	1422	2	12	5		31	19	1		72	17	7		0
	11	1163	7	10	3	113		15	7	172		14	6	160	
	5	2580	0	22	4			34	4			32	1		
	7	1842	6	16	2	113		24	6	74		23	0	80	
12900	9	1433	3	12	6		38	19	3		24	17	8		20
	11	1172	8	10	4	114		15	9	174		14	7	161	
	5	2600	0	22	4			35	0			32	2		
	7	1857	1	16	2	114		25	0	74		23	1	80	
13000	9	1444	4	12	6		4	19	4		50	18	0		40
	11	1181	9	10	4	114		15	10	175		14	8	162	
	5	2620	0	22	4			34	4			32	1		
	7	1871	3	16	2	114		24	6	75		23	0	81	
13100	9	1455	5	12	6		104	19	3		50	17	8		59
	11	1190	10	10	4	114		15	9	174		14	7	161	
	5	2640	0	23	0			35	1			32	2		
	7	1885	5	16	3	114		25	1	75		23	1	81	
13200	9	1466	5	12	7		90	19	5		0	18	0		78
	11	1200	0	10	5	115		16	0	176		14	8	162	
	5	2660	0	23	0			35	2			32	4	81	
	7	1900	0	16	3	115		25	2	75		23	3		
13300	9	1477	7	12	0		75	19	6		25	18	2		16
	11	1209	1	10	5	115		16	1	177		14	10	164	
	5	2680	0	23	1			35	1			32	3	82	
	7	1914	2	16	4	115		25	1	76		23	2		
13400	9	1488	8	12	8		60	19	5		24	18	1		34
	11	1218	2	10	6	116		16	0	176		14	9	163	
	5	2700	0	23	1			35	2			32	4	82	
	7	1928	4	16	4	116		25	2	76		23	3		
13500	9	1500	0	12	8		44	19	6		48	18	2		52
	11	1227	3	10	6	116		16	1	177		14	10	164	

I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
	5	2720	0	23	2	116		35	3	76		33	0	82	
	7	1942	6	16	5		28	25	3		72	23	4		70
13600	9	1511	1	13	0	117		19	7	178		18	3	165	
	11	1236	4	10	7			16	2			15	0		
	5	2740	0	23	2	117		36	0	76		33	0	83	
	7	1671	3	16	5		11	25	5		30	23	4		5
13700	9	1522	2	13	0	117		20	0	180		18	3	165	
	11	1245	5	10	7			16	4			15	0		
	5	2760	0	23	2	117		35	4	77		33	1	83	
	7	1971	3	16	5		111	25	4		17	23	5		22
13800	9	1533	3	13	0	117		19	8	179		18	4	166	
	11	1254	6	10	7			16	3			15	1		
	5	2780	0	23	2	117		36	0	77		33	2	83	
	7	1987	1	16	6		94	25	5		40	23	6		39
13900	9	1544	4	13	1	118		20	0	180		18	5	167	
	11	1263	7	10	8			16	4			15	2		
	5	2800	0	23	3	118		36	1	77		33	3	83	
	7	2000	0	16	6		76	25	6		63	24	0		56
14000	9	1555	5	13	1	118		20	1	181		18	6	168	
	11	1272	8	10	8			16	5			15	3		
	5	2820	0	23	4	118		36	3	77		33	2	84	·
	7	2014	2	17	0		58	26	1		9	23	6		72
14100	9	1566	6	13	2	119		20	3	183		18	5	167	
	11	1281	9	10	9			16	7			15	2		
	5	2840	0	23	4	119		36	2	78		33	4	84	
	7	2028	4	17	0		39	26	0		4	24	1		4
14200	9	1577	7	12	7	119		20	2	182		18	7	169	
	11	1290	10	10	9			16	6			15	4		
	5	2860	0	24	0	119		36	3	78		34	0	84	
	7	2042	6	17	1		20	26	1		26	24	2		20
14300	9	1588	8	13	3	120		20	3	183		18	8	170	
	11	1300	0	10	10			16	7			15	5		

I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
	5	2880	0	24	1			36	4			33	4		
	7	2057	1	17	2	119		26	2	78		24	1	85	
14400	9	1600	0	13	4		1	20	4		48	18	7		35
	11	1309	1	11	0	120		16	8	184		15	4	169	
	5	2900	0	24	0			37	0			34	0		
	7	2071	3	17	1	120		26	3	78		24	2	85	
14500	9	1611	1	13	3		100	20	5		70	18	8		50
	11	1318	2	10	10	120		16	9	185		15	5	170	
	5	2920	0	24	1			36	4			34	1		
	7	2085	5	17	2	120		26	2	79		24	3	85	
14600	9	1622	2	13	4		80	20	4		64	19	0		65
	11	1327	3	11	0	121		16	8	184		15	6	171	
	5	2940	0	24	1			37	1			34	2		
	7	2100	0	17	2	121		26	4	79		24	4	85	
14700	9	1633	3	13	4		59	20	6		6	19	1		80
	11	1336	4	11	0	121		16	10	186		15	7	172	
	5	2960	0	24	2			37	0			34	2		
	7	2114	2	17	3	121		26	3	80		24	4	86	
14800	9	1644	4	13	5		38	20	5		0	19	1		8
	11	1345	5	11	1	122		16	9	185		15	7	172	
	5	2980	0	24	2			37	1			34	3		
	7	2128	4	17	3	122		26	4	80		24	5	86	
14900	9	1655	5	13	5		16	20	6		20	19	2		22
	11	1354	6	11	1	122		16	10	186		15	8	173	
	5	3000	0	24	2			37	2			34	4		
	7	2142	6	17	3	122		26	5	80		24	6	86	
15000	9	1666	6	13	5		116	20	7		40	19	3		36
	11	1327	3	11	1	122		17	0	187		15	9	174	
	5	3020	0	24	3			37	3			34	3		
	7	2157	1	17	4	122		26	6	80		24	5	87	
15100	9	1672	7	13	6		94	20	8		60	19	2		49
	11	1372	8	11	2	123		17	1	188		15	8	173	

I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
	5	3040	0	24	3	123		38	0	80		34	4	87	
	7	2171	3	17	4		71	27	1		0	24	6		62
15200	9	1688	8	13	6	123		21	1	190		19	3	174	
	11	1381	9	11	2			17	3			15	9		
	5	3060	0	24	4	123		37	3	81		35	0	87	
	7	2185	5	17	5		48	26	6		72	25	0		75
15300	9	1700	0	13	7	124		20	8	188		19	4	175	
	11	1390	10	11	3			17	1			15	10		
	5	3080	0	24	4	124		38	0	81		35	0	88	
	7	2200	0	17	5		24	27	1		10	25	0		0
15400	9	1711	1	13	7	124		21	1	190		19	4	175	
	11	1400	0	11	3			17	3			15	10		
	5	3100	0	25	0	124		38	1	81		35	1	88	
	7	2214	2	17	6		0	27	2		29	25	1		12
15500	9	1722	2	13	8	125		21	2	191		19	5	176	
	11	1409	1	11	4			17	4			16	0		
	5	3120	0	25	0	124		38	0	82		35	2	88	
	7	2228	4	17	6		100	27	1		20	25	2		24
15600	9	1733	3	13	8	125		21	1	190		19	6	177	
	11	1418	2	11	4			17	3			16	1		
	5	3140	0	25	0	125		38	1	82		35	3	88	
	7	2242	6	17	6		71	27	2		38	25	3		36
15700	9	1744	4	13	8	125		21	2	191		19	7	178	
	11	1427	3	11	4			17	4			16	2		
	5	3160	0	25	1	125		38	2	82		35	2	89	
	7	2257	1	18	0		50	27	3		56	25	2		47
15800	9	1655	5	14	0	126		21	3	192		19	6	177	
	11	1436	4	11	5			17	5			16	1		
	5	3180	0	25	1	126		38	3	82		35	3	89	
	7	2271	3	18	0		24	27	4		74	25	3		58
15900	9	1766	6	14	0	126		21	4	193		19	7	178	
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							124				10				69
	9	1777	7	14	0	126		21	6			19	8		
	11	1454	6	11	5			17	8	195		16	3	179	
	5	3220	0	25	2	126		38	3			36	0		
										83				89	
16100	7	2300	0	18	1			27	4			25	5		
							78				81				80
	9	1788	8	14	1	127		21	4			20	0		
	11	1463	7	11	6			17	6	193		16	4	180	
	5	3240	0	25	2			39	0			36	0		
						127				83				90	
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							71				15				0
	9	1800	0	14	1	127		21	6			20	0		
	11	1472	8	11	6			17	8	195		16	4	180	
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							44				32				10
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	5	3280	0	25	3	128		39	0			36	1		
										84				90	
16400	7	2242	6	18	2			27	6			25	6		
							16				20				20
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	11	1490	10	11	7			17	8	195		16	5	181	
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	9	1833	3	14	2	128		21	7			20	1		
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	11	1509	1	11	8			17	10	197		16	6	182	
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										84				91	
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	9	1888	8	14	4	130		22	2			20	4		
	11	1545	5	11	9			18	2	200		16	8	184	
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I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
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	9	1955	5	14	7	133		22	4			20	7		
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	9	1977	7	14	7	133		22	6			21	0		
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	9	2011	1	14	8	135		22	5			21	1		
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I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
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	7	2657	1	17	3			29	5			27	4		
	9	2065	5	15	1	136		23	1	208		21	4	193	
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18700	5	3740	0	27	2	136	68	42	0	89	10	38	4	96	76
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18800	5	3760	0	27	2	137	31	42	1	89	21	38	3	97	79
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	9	2088	8	15	2	137		23	4	211		21	4	193	
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	7	2700	0	19	4			30	0			27	5		
	9	2100	0	15	2	137		23	3	210		21	5	194	
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I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
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	9	2144	4	15	4	139		23	5	212		21	7	196	
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19400	5	3880	0	27	4	139	79	42	3	91	17	39	2	98	94
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19600	5	3920	0	28	0	140	0	42	3	92	4	39	2	99	97
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19800	5	3960	0	28	1	140	60	43	0	92	20	39	3	100	0
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	9	2200	0	15	6	141		23	8	215		22	0	198	
	11	1800	0	12	9			19	6			18	0		
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	7	2842	6	20	1			30	3			28	3		
	9	2211	1	15	6			23	6			22	1		
	11	1809	1	12	9	141		19	4	213		18	1	199	

I	II	III	IIII	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIIII	XV	XVI
20000	5	4000	0	28	1	141	119	43	2	92	36	40	0	100	0
	7	2857	1	20	1			31	0			28	4		
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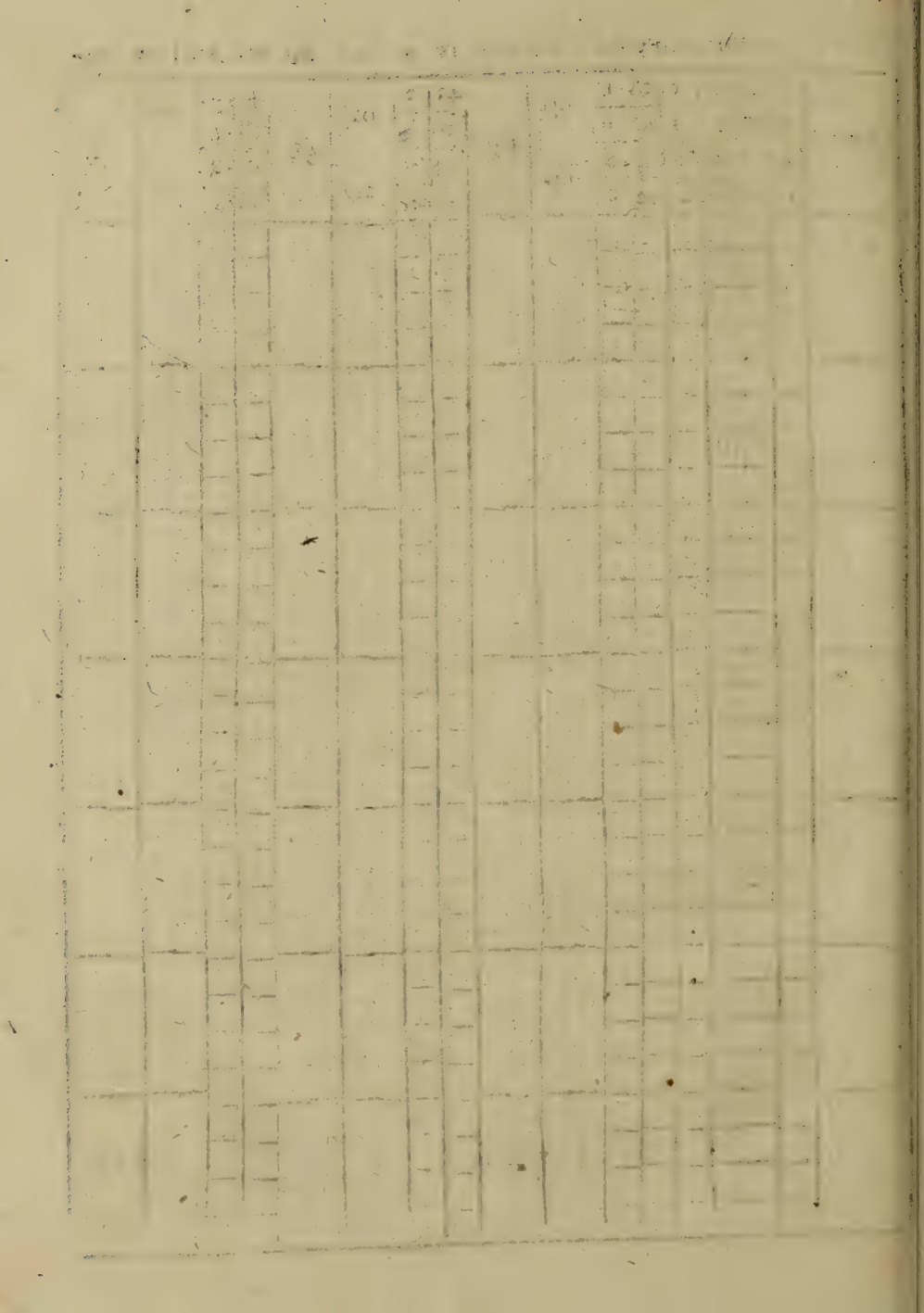


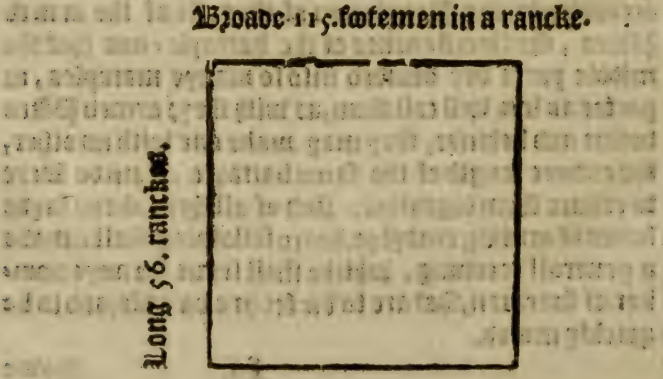
BVT nowe for further declaration of that which hath bene hitherto said, and of that whiche is nowe to to be spoken of, for the quicke & readye arming of a battaile, presuppoſing firſte by the afore sayde to ables, the length & breadth of that battayle, it is to bee noted, as I suppose for the firſte waye, wherein ſuche ſorte of ſoldiers bee founde in a raye that all the Pikes of all the Companies, bee ſet togethers in the middeſte of all the armed Pikes of all the Companyes, that is, that the one part of theſe armed pikes do go before, and the other behinde the wholearaye.

Or elſe, to make a more faire matter, as is wont to bee done in marching after this other ſorte, that the vnarmed Pikes of euerye particuler companye haue one parte of their armed Pikes, that are in that particuler Companye before, and the other behinde.

Or elſe after an other marueylous order, as at what time the Capitayne doth commaunde, that firſte there go ſuche a quantitie of armed Pikes before the whole raye, and that there do remayne as manye more behinde the ſame raye, that maye bee ſufficiente to arme, according to the Proporcion of the reſte of the armed Pikes, the two flanckes of the battayle: and that the middle parte bee deuided into ſo manye maniples, or partes as wee will call them, as with theyr armed Pikes before and behinde, they may make one with an other, the entiere length of the ſame battayle, if neede were to reduce them togeather. And of all theſe aboue sayde ſortes of arming readylye, heare following ſhalbe made a generall reconing, whiche ſhall ſerue for anye nomber of ſoldiers, that are to bee ſet in a battaile, and to be quickly armed.

NOw let vs put the case, that there were. 5000. fote-men of vnarmed Pikes, and 1450. armed with Corslets, which are in all. 6450. the which would bee reduced into a square battaile of grounde, this being a more profitable waye, than that of people, thou shalte enter the tables, in the first Columne, taking. 6450. or the nomber most neare vnto it, because it scilleth litle if it bee. 6400. and ouer against. 6400. in the fiuetenth Columne, thou shalt find that the battaile ought to be 56. in length, and 114. in breadth. And in the sixteenth Columne thou shalt finde an ouerplus of 16. fotemen, whē the same battaile shalbe set, the which. 16. fotemen, thou shalt ad to the. 50. that did excede of the abouesaid 6450. fotemen, and they will make. 66. fotemen. After thou shalt see how many times the length of ỹ battaile (being considered from brest to back) which is 56. is to bee found in this nomber of 66. and thou shalt finde it once, & an ouerplus of. 10. fotemen, & for this one time, that the nōber. 56. is found in. 66. there shalbe one added to ỹ breadth of the battaile, & they shall make. 115. fotemen in breadth from shoulder to shoulder. And thus thou shalt haue the battaile. 56. ranckes long, and 115. fotemen in a rancke broade: as is to bee seene by this figure: & there excedeth 10. fotemen, the which ten I do not place in the battaile.

The figure of the generall reconing.



And who that desireth to knowe further: the 6450. footemen, do marche in araye (as experte warriers will haue it by odde numbers) from. 3. the lesser nomber, vnto. 11. the greater, ordinary in a ranke in breadth, for so manye rankes, as are to bee, supposing then that they marche by fiue in a ranke, seeke in the seconde Columne, the nomber of fiue and ouer againste it in the third Columne, thou shalt finde that there oughte to bee. 1280. rankes. But because there is not to be founde in the tables, other then the nomber of 6400. thou shalt take that whiche is the ouerplus, that is 50. it will make 10. rankes more, the which thou shalt adde to the 1280. rankes, and they will make 1290. rankes: thus 6450. footemen going in araye by 5. in a ranke, shalbe 1290. rankes, the like is to be vnderstode of the rest. Besides thou shalt see howe many rankes the 1450. armed Pikes oughte to be in length, and howe manye doth excede ouer and aboue the rankes. In this sorte. thou shalt deuide those armed pikes by the breadth of the battaile, which is 115. therof shall come 12. rankes in length, and an ouerplus of 70. armed pikes, the which, because they do not make an entier ranke, are afterwardes placed in that part of the battaile, that shall seeme to the Sargiant of greatest necessity: and thus thou shalt finde that where the whole battel ought to be 56. ranks long: & that the armed pikes are 12. rankes, it remayneth that the length of the vnarmed ought to bee 44. rankes, the which shall bee in the middest. The like reconing is to be made, if any will make a square battayle of nomber of people: not so muche for to see the length and breadth with the armed rankes, and that whiche doth excede both within and without of this battaile, of a nomber of 5000. vnarmed footemen, and of 1450. armed with Corslettes, as also of what soeuer other nomber, be it greater, or lesser then the aboue sayde.

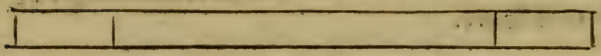
The whiche forsayde reconing it is supposed that the generall doth know it,(or some other person)to whome it doth appartayne to giue order of the maner, howe to arme the battayle:to the ende that hauing it in memorye,he may not staye vpon other, then to commaunde his Captaynes,or Seargiantes to set the same in a readinesse, as in the examples followyng shalbe shewed.

¶ *The first example.*

NOw in case there bee a nomber of 6450 fotmen betweene armed and vnarmed Pikes, and that the vnarmed bee 1450. And the vnarmed 5000. as is before set forth in the generall reconing, and that this nomber of fotemen were with spede to be set into a battaile armed with Corsletts,it is necessary that the generall,or some other, haue well in minde the reconing of the length and breadth of the whole battayle, and seuerally of the armed and vnarmed Pikes, to the end that if occasion do happ.as I haue already sayd,none other is to bee done, than to commit to his Sargiantes the order that they are to obserue in arming the battaile. And so let vs put the case that the length thereof be 56. ranckes,at 115.fotemen in a rancke in breadth,in this sorte,that is 12 ranckes in lengthe of armed Corsletes, & an ouerplus of 70.armed fotemẽ,& 44.rankes of vnarmed,as is to be seene before in the generall reconing. In arming of the which battayle, let vs presuppose the first aboue named manner: that is, whan those people owe marche in araye, as as manye as they will in a rancke, aswell in length,as in breadthe, with the vnarmed Pikes in the middest. and all the armed Pikes, part set before and part behind: as in the first figure is to be seene.

The first figure.

¶ A raye, where one parte of the armed Pikes doo goo before, and the other behind with the vnarmed Pikes in the middest.

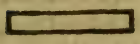


LEtting the readers to vnderstande, that the yellowe Colour, dothe signifie the armed fotemen with Corslettes, and the white the vnarmed. The whiche being supposed, there is cõmitted to those armed rankes that goo before, that of them there be made seuen rankes for the length, from brest to backe, at 115. men for the breadth, from shoulder to shoulder, as by the seconde figure is made manifest.

The seconde figure.

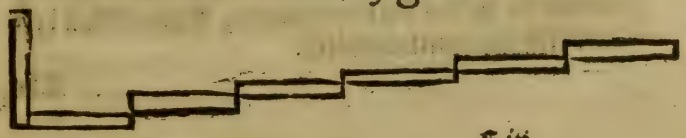
Broade 115 men.

Long 7 rankes.



Straight after let 44 rankes of vnarmed Pikes in length, be bestowed behind these armed rankes, at as many in a ranke in breadth, for so many as are in the raye, as you see to be in the thirde figure.

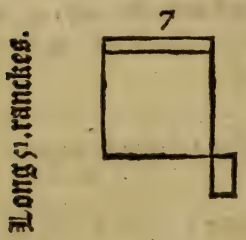
The thirde figure.



AND so 44. other rankes of the next that are spoken of, shall approche in maner as is already sayd, doing orderly the like vnto the ende of the whole araye of the vnarmed Pikes: because in this sort the whole battaile shall come to be framed, as you haue an example by the fourth figure.

The fourth figure.

Brode 115. fotemen in a ranke

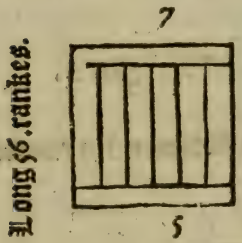


WHen the raye of the vnarmed Pikes shalbe thus framed & made into a battaile, from brest to backe after the armed Pikes at the head of the battaile, as is aboue saide. A raye of armed Pikes shalbe caused to march behind the vnarmed Pikes, making fiue rancks in length at the taile of the battaile, the whiche in thus doing, thou shalte finde to bee 56. rankes long, or as it pleaseth some to saye 56. men, and 115. men brode in a ranke, with seuen rankes of the armed Pikes at the head, and fiue rankes also of the same armed Pikes at the tayle, as maye be seene set forth by the fift figure, wherin I do not put the tenne that do excede, because these and suche like maye be placed, where it shal best please him that commaundeth.

The

The fift figure.

Brode 115. fotemen in a ranke



NOwe that one hath in this sorte appointed his battayle as aboue, a couple expert in the art of warre shall go the one to the head, and the other to the taile, and take awaye one or two rankes from the breadth of the battayle for the one, for to arme two flankes, that is, that each one of thē take care to arme one flancke: one rancke in breadth, doth make two and somewhat more in length, & if there were people there it woulde make litle more then one: thus taking one rancke from the head, and an other from the tayle, there shalbe two in a rancke for eache flancke, and so according to the nomber that shalbe taken awaye in breadth, it shalbe double in length, wherefore a battaile well appointed, woulde bee double in breadth to the length, according to the iudgemente of skilfull warriers, aswell auncient as moderate.

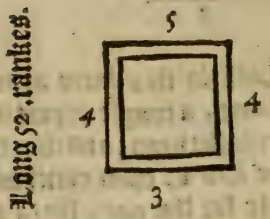
And thus wee will suppose that there is taken from the headde, and from the taile two rankes according to the iudgement of him, that shall arme the two flankes of the battaile, or more or lesse, as occasion shal happen, and thus the battaile shalbe 52. rankes long at 123 fote-

men

men in breadth for euerye ranche, and there doth ercede tenne fotemen, which are not in the bodye of the battayle, with fiue ranckes of armed Pikes at the head, and three ranckes at the tayle, with foure in a ranche to the two flanckes of the armed Pikes, in such forte as is feene ordered by the firt figure.

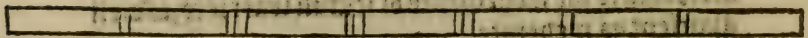
The sixte figure.

Brode 123. fotemen in a ranche



¶ The seconde example.

BEing willing to arme a battayle quickely, according to the seconde maner aboue sayd, in marching companie by companye of euery perticuler Captayne, and that eache companie haue the one halfe of their armed Pikes at the head, and the other at the tayle: The which maye be erpresly seene by the seuenth figure.

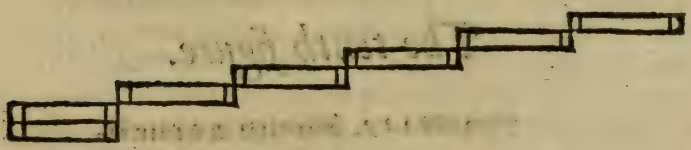


A Kaye wherin there goeth company by companye, with the one halfe of their armed Pikes at the head and the other at the tayle.

Sup-

SVppoſing therefore to haue in minde the ſelfe ſame aboueſayde reconing, and that there are yet. 5000. fotemen of vnarmed Pikes, and. 1450 fotemen armed with Coꝛſlettes, with 56. in length, and 115. in bꝛeadth of the battaile, with ſeuen ranckes of fotemen armed with Coꝛſlettes at the headde, and fiue rankes at the taile of the ſame, none other is to bee done, but to committe to eache one of the Capitaines, that they doo make with theyꝛ armed and vnarmed Pikes 56. rankes, ſetting ſeuen ranckes of thoſe armed with Coꝛſlettes at ths headde, and fiue ranckes at the tayle. And if any Capitayne did lacke people to make the ranckes. 56. hee ſhall ioyne with another Capitaine, ſo that betweene thē two they maye make 56. ranckes, putting the ranckes of thone to the ſhoulder of the ranckes of the other, in ſuch ſoꝛte as by this eight figure wee haue dꝛawne foꝛth that it ſhoulde bee.

The eight figure.

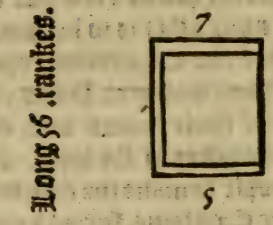


AND they ſhal make the battaile. 56. rankes long at a 115. fotemen in a ranke in bꝛeadth, with ſeuen rankes of armed Pikes at the heade, and fiue ranckes at the taile: as in the fifte, ſeuenth, and this ninth figure may bee ſeene.

Examples to arme a battaile.

The ninthe figure.

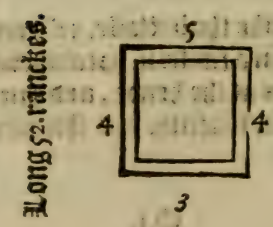
Broade 115. fotemen in a rancke.



THE which battaile being ordered as you see: and being willing to arme the two flanckes thereof, the same shalbe done, that is done in the firte figure: And thus the battaile shalbe 52. rankes long, at 123. fotemen in a rancke broade, with fiue rankes of armed Pikes at the headde, and three rankes at the tayle, and fowre fotemen in a ranck of the armed Pikes to eache of the two flanckes, as by the tenthe figure wee haue set forth a forme before your eyes.

The tenth figure.

Broade. 123. fotemen in a rancke.



The

The thirde example.

NOwe there remaineth for vs to arme a nomber of people, set in the aboue sayde thirde sorte. That is, within the raye doth go maniple by maniple, that is, that one parte of the armed fotemen, that ought to arme the two flanckes of the entiere battaile, are deuided into two, and one parte goeth before all the maniples, and the other behinde: and that beside, that euery maniple hath one parte of his particuler armed Pikes before, and one part behinde, in such sorte as the armed and vnarmed Pikes of this, suche a maniple going in araye, is to the iust length of the battaile: The whiche let it bee sayde of all the other maniples.

And for to order with reason these sorts of maniples, this is to bee done, let vs suppose that the armed & vnarmed Pikes, are to the nomber aboue written, with a determinacion to reduce the battaile to the selfe same length & breadth, and that you will haue them to go in arraye by fiue in a ranke in breadth, you shall deuide ỹ breadth of the battaile of the vnarmed Pikes. Pikes whiche is 115. as maye bee seene aboue, by fiue, thereof shall come 22. maniples, and an ouerplus of three. And thus euerye maniple shalbe. 52. ranckes long, at 5. fotemen in a ranke, with 5. ranckes of armed fotemen at the head, and 3. ranks at the taile, letting you to wit that, ỹ three ouerplus of 22. shal make in like sort a maniple in length: as here aboue, from three fotemen in a rancke in breadth, with fiue ranckes in lengthe of armed fotemen at the headde, and three at the tayle: But because this maniple of three in a rancke in breadth, commeth to bee more narrowe than the other maniples, thou for to cause that the raye maye go with an euennesse, shalte cause this maniple to go by fiue in a rancke in breadth: as in the eleuenth figure is to be founde.

The eleuenth figure.

THe raye wherein doth go maniple by maniple, one part of the armed Pikes at the headde, and the other parte at the tayle of the maniples.

BEcause these maniples happening after to bée set in battaile, they shalbe set by thrée in a rancke in breadth, and straighte there shalbe ioyned vnto them the rest of the battaile: the whiche being nédefull to reduce into forme, none other is to bée done, but that the armed Pikes, that do marche before the whole maniples, do streatche them selues forthe to fowre in a rancke in breadthe, making .52. ranckes in length, for a flancke of the battaile: as in the twelfth figure maye clearely bée perceyued.

The twelfth figure.

Broade. 4. fotemen in a rancke.

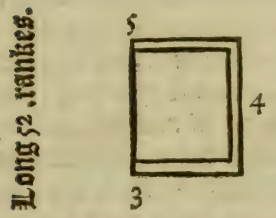
Long. 52. ranckes.

The first flancke.

AND to cause after that the maniples bée drawen forth to the shoulder of this flancke, the one being armed to the side of the other. As in the thirtenth figure is shewed forth vnto vs.

The thirtenth figure.

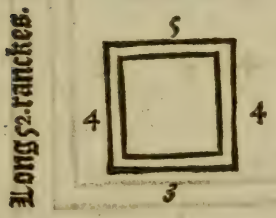
Brode 119. fotemen in a rancke



AND they shall make the battaile. 52 ranckes long at. 119. fotemen in a rancke in breadth, with one flancke armed, at fowre in a rancke, as in the thirtenth figure it is ordered. And this being done the armed Pikes shall followe, as they maye go behind the whole raye of the armed and vnarmed Pikes: And they shalbe stretched forth likewise to fowre in a rancke from the other flancke. And the battaile shall come to bee. 52. ranckes long at, 123. fotemen in a rancke in breadth, with fine ranckes of armed Pikes at the heade, and three at the taile, with fowre in a rancke of the armed Pikes to the two flanckes, as by the forme in the fouretenth figure is to be shewed.

The fouretenth figure.

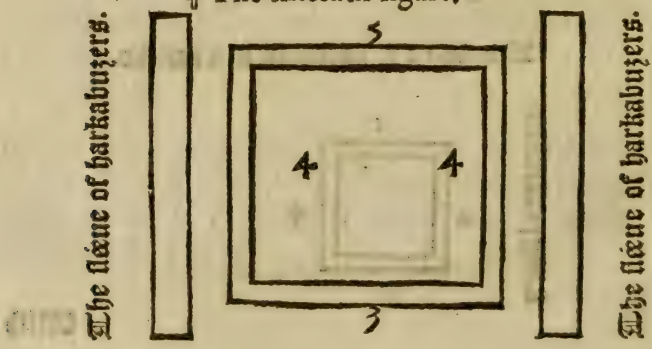
Broade. 123. fotemen in a rancke.



With

WIth aduice that the Anſignes would be ſet and vnited together in the mideſt of the battaile: or elſe ouerthwart the ſame: and as it ſhall ſeem moſt beſt in making them moſt ſure, and well warded. It remayneth that wee do intreat howe to make the flæues of the harkabuzers, and winges of the horſemen. Aduiſing firſt eache one that doth reade this, that althoughe hitherto there is nothing ſpoken of harkabuzers, neuertheleſſe it is to be ſuppoſed that from the beginning, before the people be ſet in aray, theſe harkabuzers, that is, that parte which goeth before, oughte to be the firſt to be there placed, and to make the flæue in ſuche ſort, as it bee as long, or more, as neede requireth, as the length of the battaile is to be: and the which raye of harkabuzers is called a flæue. In this ſort cauſing ſo many ranckes of the ſame harkabuzers to remayne of thoſe, that is, that do marche before the raye of all the armed and vnarmed Pikes, as is the length of the battaile from 10. vnto fiftéene fotemen in a ranche, in breadth, and to the ſhoulder of this flæue, the battaile ſhal come to be formed with thoſe armed Pikes rounde about, as is aboueſaid, diſtant eight or twelfe fote frō the flæue. And the reſt of the harkabuzers that do marche behinde the armed and vnarmed Pikes, ſhall make an other flæue on the other flācke of the battaile, diſtante, in proporciō to the firſt: as in the fiftēnth figure appeareth.

¶ The fifteenth figure.

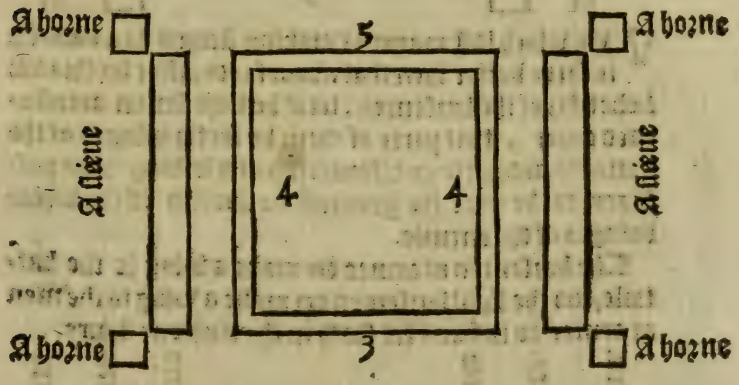


Examples to arme a battaile.

THerof also aduertising the reader ꝑ the grene color signifieth the harkabuzers, and the red, the men at armes, and the murreye the light horsemen.

After at the head of these flæues, on the one side may be made hornes of harkabuzers: as is in the sixtenth figure.

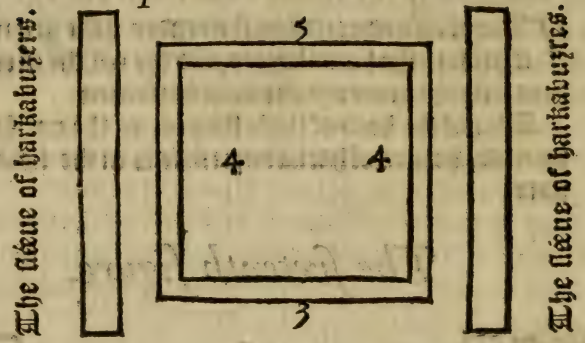
The sixtenth figure.



AND if by any meanes there shoulde excede harkabuzers, they shalbe set togethers on one side for a succour to the horsemē, or where it were most expediēt for the defence of them selues, or for the offence of the enemie. Not omitting to tell you, that the flæues of the harkabuzers maye be made more long then is the battayle, as is abouesayde: in suche sort as they should excede beyonde the heade and tayle of the battaile, because they might serue for hornes: as in the seuententh figure is to be founde.

The seuententh figure.

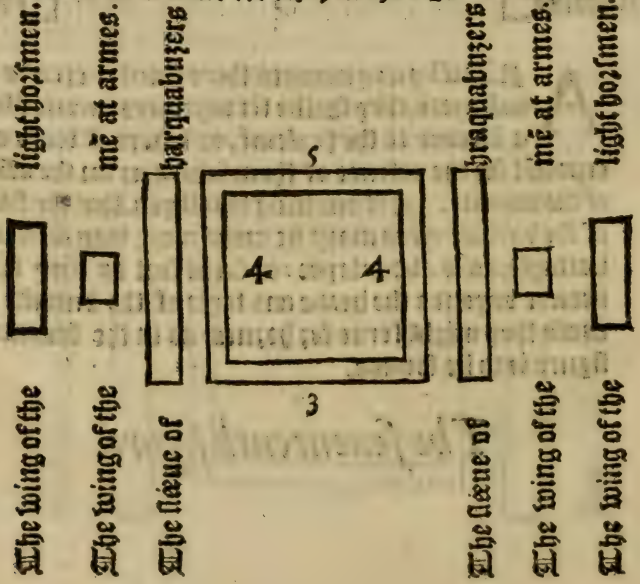
The.17. figure.



THe which last maner of making sléeues to a battaile is farre better then that abouesayde, after let this bée loked for of the horsemen, let it be kept for an accustomed order, that parte of them be set for winges of the battayle, and parte go discouering and loking to the passages: to the ende the generall be aduised of the whole doinges of the enemie.

The horsemen at armes dw make a wing to the battaile, and the light horsemen dw make a wing to the men at armes as is séene set forth in the eightene figure.

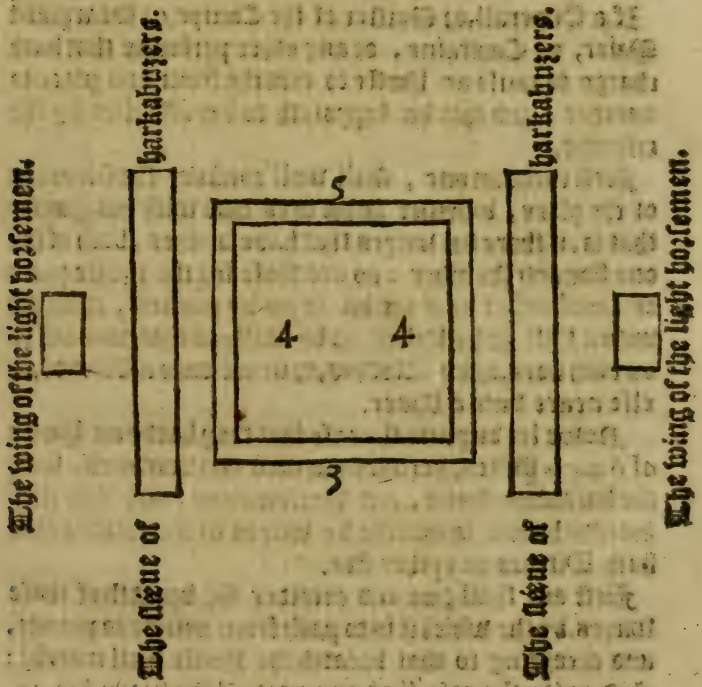
The.18. figure.



Examples to arme a battaile.

And if by chaunce the men at armes were not, there shalbe set for winges a parte of the Light Horsemenne, and the other parte shall goe in vewing of the enemye: As is seene expressed and set forth in the nineteenth figure.

The nineteenth figure.



Away to marche.

Geuing you warning of importaunce, that the horsemen in fight bee distaunte as muche as is possible from the battaile, leaste it shoulde bee an occasion in retiring from the enemy, to breake the raye of the battaile.

Lastlye, putting you in minde that the horsemen in their lodging woulde bee asmuche as is possible couered and warded by the fotemenne because when they are to prepare them selues to armes, they are muche more slower to bee set in order, then are the fotemen.

If a Generall, or Maister of the Campe, or Seargiant Maior, or Capitaine, or any other personne that hath charge to cause an Hoste to marche from one place to another, and that hee supposeth to bee assaulted by the enemye.

First suche an one, shall well consider the situacion of the place, whyther as hee is to goe with his Hoste: that is, if there bee wayes that haue ditches, both of the one side and the other: as are those for the moste parte of Lombardy: or if hee bee to go by plaines, or neare vnto a Hill, or by Hilles, or by Vallyes that haue hilles on both sides, or by Woodes, or neare vnto a Woode, or else neare vnto a Riuer.

Nowe let vs putte the case that they hadde an Hoste of 6450. Pikes, betweene armed and vnarmed, with the harkabus shotte, and horsemenne, and that they woulde haue it to marche by wayes in the plaines that hath Ditches on eyther side.

First one shall goe and consider the breadth of those wayes, by the which it is to passe from poincte to poincte, and according to that breadth the Hoste shall marche: And putte the case that one part of the waye bee 15. fote broade, the Hoste shalbe made to marche by 5. in a ranche: Because euery foteman will haue three fote in breadth, and if you would knowe howe many ranches

of

of fotemen there are in. 6450. thou shalte deuide. 6450. by 5. thereof shall come. 1290. rankes, & so these fotemen shall go by 5. in a ranke, vntill suche time as the waye bee founde more broade, or more narrowe, and there the waye shalbe measured agayne, and the reconing shalbe made as before, for to see howe many fotemen go in a ranke, and howe many rankes there are: Causing parte of the harkabus shotte to marche before the raye, and parte behinde, and another to go in succoure of Horsemen, that go in bewing of the passages, and the imbushments, with the whole doinges of the enemye. And let another parte bee for a Vantgarde and Retroguarde to the raye, to bee able to serue them at neede, and another parte go alwaies at the flankes of the raye, whiche are passed the ditches on the one and the other side of the waye, because the bankes of the ditches shall serue them for a coūtermure: when the Horsemen of the enemye should come to sette vppon the flankes of the raye. And if there were men at armes, I would that they should marche on bothe sides of the raye, and also of the harkabuzers, that do marche by the flankes of the battaile, or raye: And if there were no menne at armes, I woulde that a parte of the Light Horsemen, should serue in steede of the menne at armes, as is aboue sayde, because one parte of the Lighte Horsemen doe serue for Scoutes, bothe before and behinde the raye: but yet in departing from theyr place, I woulde that they shoulde faine to go some other waye, then to that place whereunto they purposed to go. And alwayes whan the hoofte marcheth, I woulde haue abundaunce of Labourers to make places plaine, to caste downe Bridges, to make defences, and other necessarye thinges that are required in marching.

And also perfect good guides, that are very well practised in the Countreye: & if it marche by the plaines, let the same order be kept, that is spoken of above, except the Pikes, I woulde that they shoulde marche in battayle: And if the hoste did marche neare vnto a hill, it shall kæpe the Pikes in battaile as muche as maye bee, according to the greatenes of the waye: and sende of the light horsemen, and of harquabuzers to ouer loke the hill, to the ende the enemye take not the toppe of the hill from them, and in the rest to followe as is sayde in the first order.

And if it did marche ouer an hill, to kæpe the Pikes in battayle asmuche as is possible, and let parte of the light horsemen, and harkabuzers go vewing the hill well, to the ende the enemye take not the toppe of the hill from them, and the rest to followe as in the first order.

And if it marche throughe a valleye betweene two hilles, there shalbe sente Light Horsemen and harkabuzers to eyther hyll to vewe very it well, to the ende the enemye take not the toppe of those hilles from them, and in the rest to followe as in the first order.

And if it marche through Woodes, to kæke the Pipes asmuche as is possible in battaile, and to sende of the Lighte Horsemen and harkabuzers, to vewe all partes of the Wodde verye diligentlye, and for the rest to kæpe the order after the first waye.

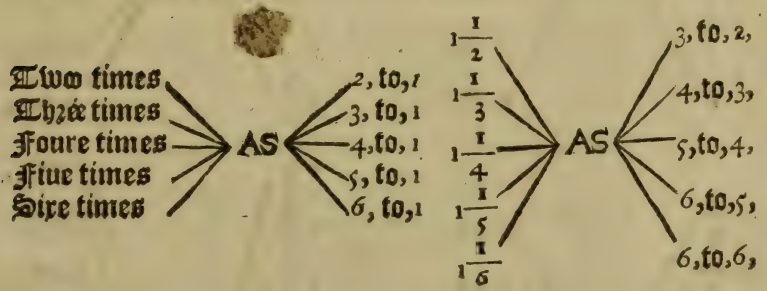
And if it marche neare vnto a Wodde, some shall go to vewe the Wodde verye well, causing one parte of the harkabuzers to marche by the flanckes of the araye on the Wodde side, and the reste to followe as in the first order.

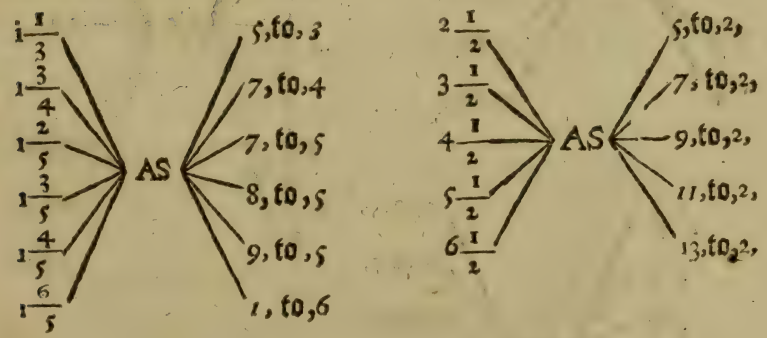
And if it marche neare to a Ryuer, you shall do as is sayde, for the marching neare a wodde, and in the rest to followe, as is appointed in the first waye, the baggage shall marche on the side where is least suspicion of the enemye, vnder theyr owne ensigne.

Let-

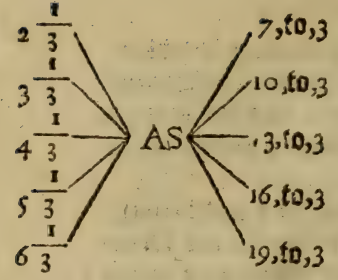
Letting you also to wit, that if it shall go to any enterprise under the coloure of one spye, there ought not to bee geuen suche credite to the spye, but that it goeth well prouided and warye, because many times spyes are double.

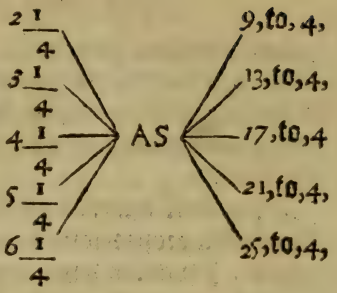
If you will make a battayle, that the breadth maye haue what proporcion you will to the length, as for example, I woulde haue my battaile two times more large then long of men, three, fowre, fiue, sixe, one and a halfe, one and a thirde, one and a fowrthe, one and a fifte, or in any other proporcion, as heare vnderneathe shalbe declared.

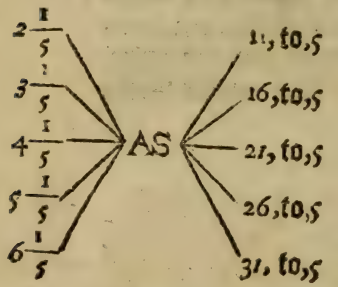


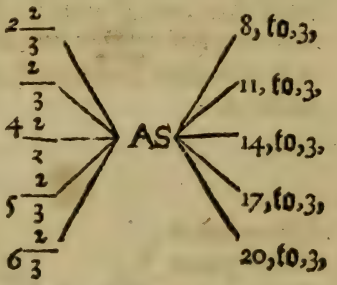


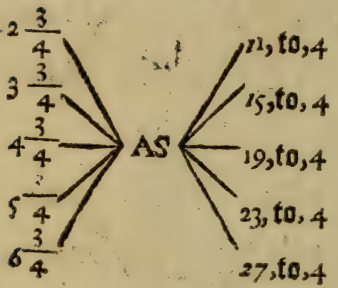
A way to marche.

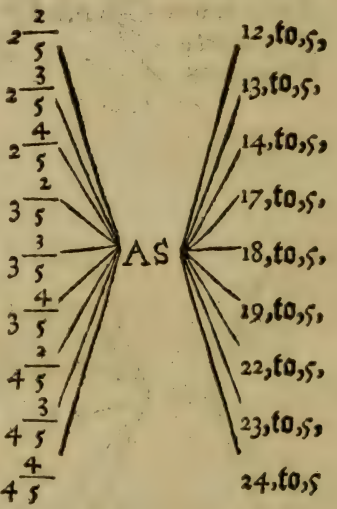


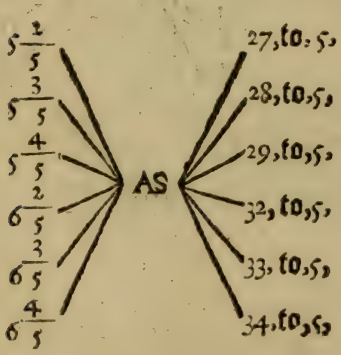












Hauing nowe set forthe the proporcions that maye happen in setting of sundrye battailes, beare followinge shalbe declared, howe to knowe them, and also how they are to be vsed in setting the same battailes.

First for to knowe the proporcions, as one would saye, I would knowe what proporcion 3. is to 2. comparing the greater whiche is 3. to the lesser whiche is 2. 3. the greater shalbe deuided by 2. the lesser, whereof cōmeth 1. and $\frac{1}{2}$ that is, the greater is one and a halfe more in proporcion, then is the lesser: And if you compare the lesser whiche is 2. to 3. the greater, it shalbe sayde 1. and $\frac{1}{2}$ that is, the lesser is one & a halfe lesser in proporcion, then is the greater: In like sorte if you would know the proporcion of 19. to 4. where the greater is compared to the lesser, 19. the greater, shalbe deuided by 4. the lesser, whereof doth come 4. and $\frac{3}{4}$ thus 19. to 4. shall haue 4. and three forthes, in proporcion, that is. 19. the greater doth containe fowre and three forthes the lesser: And if you compare the lesser whiche is 4. to the greater, which is 19. 19. also the greater shalbe deuided by 4. the lesser, whereof doth come 4. and $\frac{3}{4}$ and it shalbe sayde that 4. and three forthes lesser is contained in the greater, that is, that the lesser, is fowre and three forthes lesse then the greater, & by this rule shalbe knowen the proporcion of any nomber to an other: Hauing alreadye declared the proporcion of one nomber to an other, here vnderneath shalbe declared howe battailes are to be made, in what proporcion soeuer one will.

For example, let vs put the case that one wouldе make a battaile, whose breadth were twoo and one thirde, more then the length, of men there shalbe set downe twoo nombers, that hath the proporcion of twoo

and

and a thirde, as is aboue declared, which shalbe as 7. to 3 whose proporcion shalbe 2 and $\frac{1}{3}$ that is, twoo and a thirde: And because wee will haue the breadth greater then the lengthe: the lesser number shalbe taken for the firste, and the greater for the seconde, and the nomber of the people that are to bee set in battaile, let vs put the case they were 6500. men betweene vnarmed Pikes, and Corsletes, as heereafter is to bee seene.

The firste.	The seconde.	The thirde.
3	7	6500.

After let the seconde bee multiplied by the thirde, that is, 6500. by 7. will make 45500, and 45500. shalbe deuided by three, whiche is the firste, and thereof shall come 15166, and there exceedeth 2. the whiche shalbe let goe, and no accounte to bee made thereof at all, after there shalbe taken the square roote of 15166. which shalbe 123. in a ranke, & that whiche dothe exceede aboue the square roote, shalbe let go, as aboue, and for to haue the length of the battaile, the nomber of the men shalbe deuided, that is 6500. by 123. the breadthe of the battayle, thereof shall come 52. for the leangthe of the battaile, and 104. footemenne shall exceede, and 104. footemenne are twoo times 52. and there exceedeth neuer a footeman, and if there did exceede any, they shoulde bee footemenne, whiche are not to bee accompted in the battayle: but yet for the seruice thereof, and twoo shalbe ioyned in a ranke, whiche shall make 125. footemenne in a ranke: thus wee shall haue our battayle 52. rankes long at 125. footemenne in a ranke broade, which shall haue almoste the proporcion of breadthe to the length, as 7. to 3. for in deuiding 125. by 52. it maketh 2. $\frac{21}{52}$ whiche is a litle more then 7. deuided by 3. which make 2. and a thirde: thus wee shall saye that oure battaile is

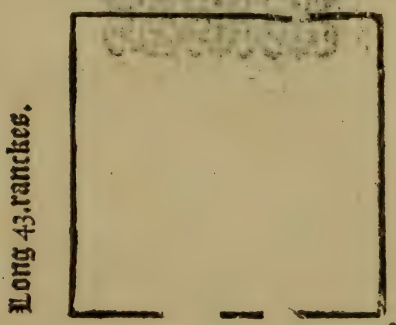
52.

52. rankes long, and 125. fotemen in a ranke broade, as in a figure shalbe seene.

Another example, if you woulde make a battaile, that had the breadthe to the leangthe, as 3. is to 1, that is, that the breadth were three times more then the leangth. We will set forth a rule, that is, one for the first, 3. for the seconde, and the nomber of menne for the thirde, as heare vnderneath is to bee seene.

The first.	The seconde.	The third.
1.	3.	5600.

Nowe the seconde shalbe multiplied by the thirde, and it will make 16800. and 16800. shalbe deuided by the first, that is. 1. whereof shall come but 16800. because one dothe neyther deuide nor multiplye, and of 16800. we will take the square rote which shalbe 129. and there dothe excede 159. whereof there is made no reconing. and 5600. which is the nomber of the people, shalbe deuided by 129. whereof doth come 43. which is the leangth. and there doth excede 53. men, & of the 53. men we will sette one in a ranke, whiche will make 43. rankes at 130. fotemen in a ranke, and there doth excede 10. fotemen, as is seene here in this figure.



Examples to arme a battaile.

And this battaile abouesayde hathe his breadthe to his leangthe, as 3. is to 1. and these selfe same rules are to bee made in any sorte of battaile, and in any proporcion that you will. The whiche aduices, with many other, entreated of by others, maye with the helpe of God, bring this parte of warfare enterprises to a good ende.

FINIS.

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PLUS
WHITE-HORNE
CATARRO

(FF2^{V} & FF3^{T} lack printed text.)

for W x U Bailey
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$a^4A\text{-}G_5{}^4$; $H\text{-}N^4$; $A^6\ B\text{-}D^4E^2F\text{-}H^4I$ 1.